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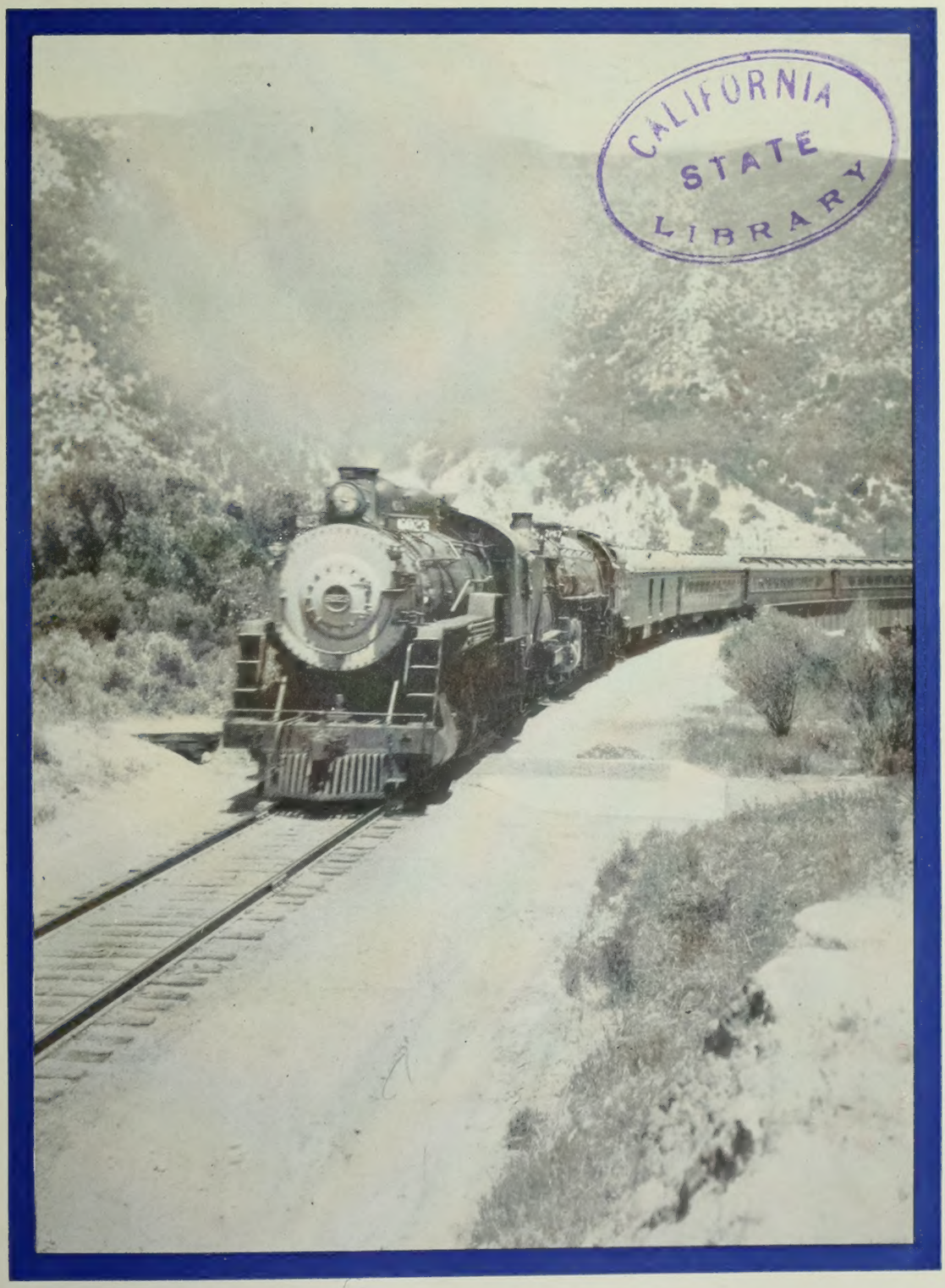
CALIFORNIA

Transportation

The Monthly Magazine of the Transportation Industry



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Vol. III JULY 1928 No. 1

AUTOMATIC

TO do automatically that which human hands previously did has been proven over and over again to be *Economy* of a very satisfying kind.

The ROBINSON CONNECTOR is *Entirely Automatic.* Among its benefits and economies are:

1—Speeds terminal operation. Upon this depends the effectiveness of large investments.

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10—Increases tonnage where brake control is the determining factor.

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12—SAVES TIME—now the chief element in transportation.

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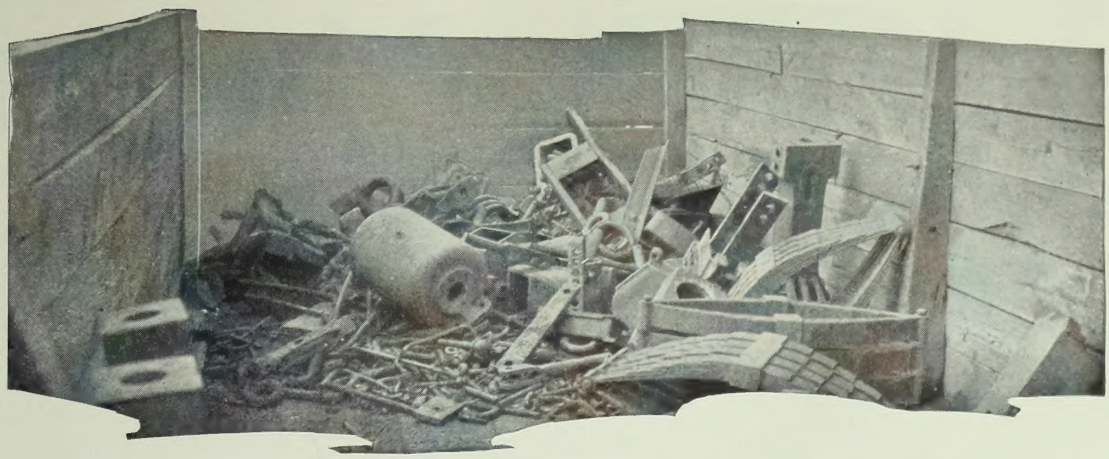
Take a Look at the *Scrap* Pile



COUNT the truck lever connections, brake beam hangers, truck levers and other brake gear details. Pick up a few of them. Examine the parted welds and the worn pin holes.

Then, look for a Schaefer Drop Forged Truck Lever Connection, Brake Beam Hanger, Body Lever, Truck Lever, Rod Jaw or other brake gear part. You will find very few Drop Forged parts in any scrap pile—and these are there not because of failures in service but usually as the result of wrecks. Schaefer details are made with far greater strength and durability than even the most severe service requires.

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STRENGTH EFFICIENCY HOMOGENEITY

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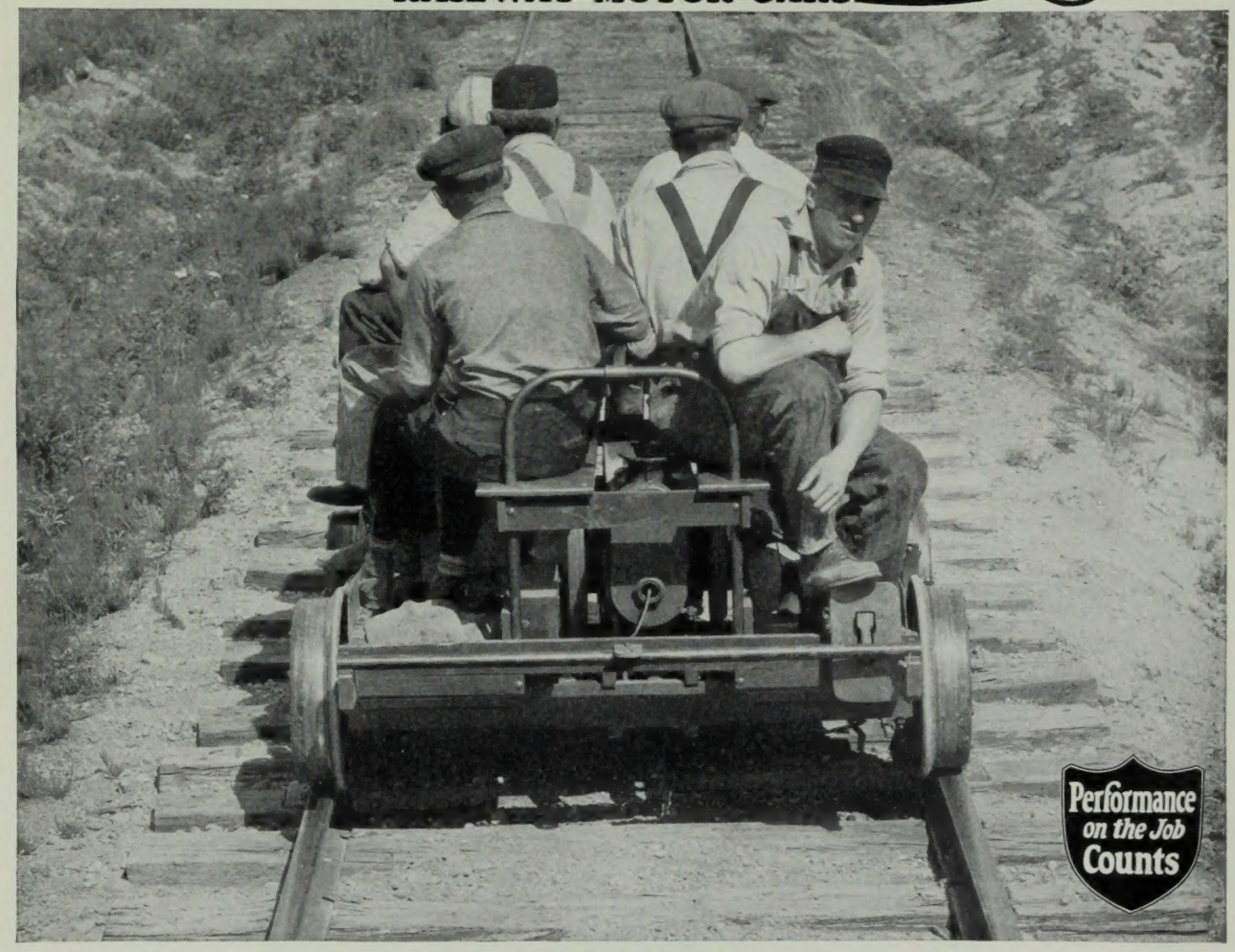
RAILWAY MOTOR CARS



LOOKING AHEAD to provide adequate facilities, resources and products to meet the progress of railroads was clearly demonstrated when Fairmont and Mudge joined forces. This combination of organizations, facilities and men assures greater advancement than ever in motor car design and construction as well as service.

It accounts for the new nation wide service recently developed by Fairmont and Mudge which gives you the immediate assistance of factory trained railway motor car service men. Fairmont service men are now permanently located at central points throughout the country—also in Canada and in Mexico. These men are trained to help you plan and develop better maintenance and lower cost per mile.

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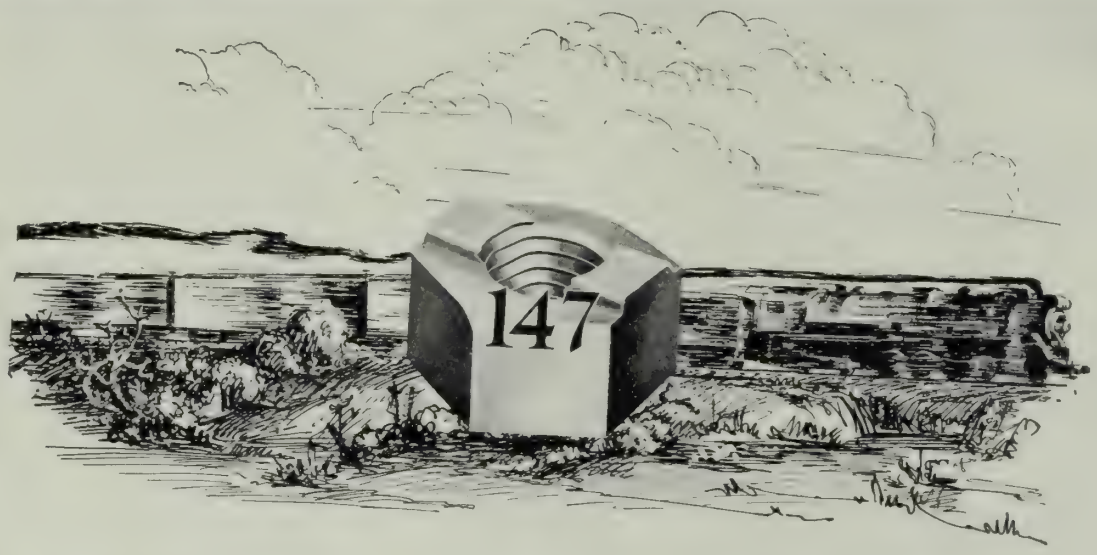
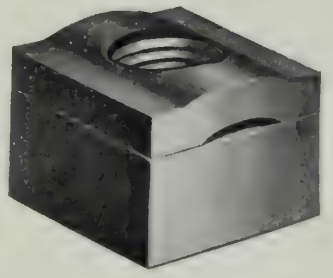


What Roads Use Grip Nuts?



Grip Lock Nut

What railroads use Grip Nuts as common standard? Those roads whose officials fully realize these things:

1. That safety—of passengers, crews, lading, equipment—is absolutely dependent upon the security of bolted parts.

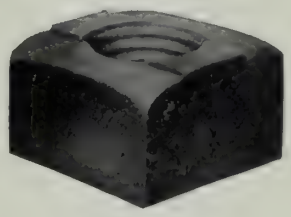
2. That the surest means of securing bolted parts—the product of twenty-one years' application of inventive genius, mechanical skill, and conscientious workmanship—is Grip Nuts.

3. That Grip Nuts keep "bad orders" at the minimum.

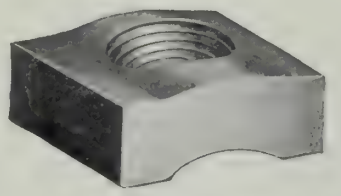
4. That Grip Nuts cut down annual nut consumption by minimizing replacements.

5. That, from the standpoints of both efficiency and economy, Grip Nuts are the logical railroad standard.

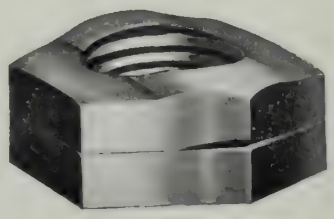
There are the reasons why Grip Nut Company's customer list includes 147 of the Class 1 Railroads of the United States.



Grip Unit Nut



Grip Holding Nut



Grip Loco Nut

GRIP NUT COMPANY

5917 South Western Avenue, Chicago, Illinois

Transportation

The Monthly Magazine of the Transportation Industry

JULY, 1928

VOLUME THREE NUMBER ONE

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FRISCO'S YALE YARDS ARE OPENED, *W. J. Waters*

ILLINOIS CENTRAL'S NEW EXTENSION, *A. F. Blaess*

A FAMILY RAILROAD IN MISSOURI, *C. M. Wilson*

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A SKYSCRAPER FOR THE NEW YORK CENTRAL, *W. J. Paterson*

BARGE LINES AN ECONOMIC LOSS, *Ten Years' Review*

WHAT DO YOU KNOW ABOUT TIRES? *Harley Densmore*

HANDLING A MILLION PACKAGES A DAY, *R. E. M. Cowie*

AND STILL THE TAXES CLIMB, *J. B. Shores*

RAILROADS HAD NO SUCH RECEPTION, *T. C. Powell*

LITTLE STORIES ABOUT BIG MEN.

PUBLISHED BY

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Atlantic Foto.

General View of the Exhibits in Young's Million Dollar Pier, Atlantic City, Convention of the American Railway Association.

The A. R. A. Has Record Convention

Warm Days at Atlantic City

By Harold A. Smith

TWO thousand, one hundred and twenty-two representatives of the various American railroads, 983 guests and 2647 railway supply men (commercial ambassadors) foregathered in Atlantic City between June 20 and 27 and, of course, in addition there were the ladies, 2151 of them, who, as Chairman Smart said in his opening address to the mechanical division, are very essential. They are there to see that their husbands get to bed early enough to insure their getting up early enough to insure starting the meetings on time in the morning. And then, of course, the old adage of "all work and no play makes Jack a dull boy" still holds good, and surely the ladies are essential to the interesting and charming dances and entertainment features that have become institutional in connection with the Atlantic City conventions.

The total registration this year was 7903, an increase of 59 over the attendance in 1926 and 1649 more than in 1922. One of the outstanding features of this year's convention was the increase in size, and the interest in the track exhibits. These were at two points, the Reading terminal and the Pennsylvania terminal, and altogether occupied nearly three times the space covered by these exhibits at the convention in 1926. On the Million Dollar Pier and Marine Hall there were 384 exhibits covering about 132,000 square feet of space.

This year there were eight modern steam locomotives shown at the convention all quite different in design, and embodying the latest ideas in locomotive development. The Pennsylvania exhibited one of its Pacific type (K4s) passenger train locomotives equipped with the Commonwealth cast steel locomotive bed with integral cylinders and also a Mountain type freight locomotive weighing 382,400 lbs. The Texas & Pacific exhibited one of its new Texas type (2-10-4) oil burning engines built by the Lima Locomotive Works. These engines are averaging 41 per cent less oil per 1,000 gross ton miles and an average of seven cents less per mile for running repairs with about 50 per cent of their assigned mileage run out than did the Santa Fe type locomotives

formerly used in this same service with the same amount of mileage run out. The "President Cleveland," one of the Baltimore & Ohio's Pacific (4-6-2) type locomotives was also on exhibit. It has many new and unusual features, including a water tube firebox, Caprotti valve gear, water bottom tank. In order to develop stream lines and make the engine as attractive as possible on the exterior many changes from usual practice have been made. The piping, for example, has been suspended from the running boards, the air compressor has been placed between the frames, back of the main drivers, and the generator is on the rear deck on the left side.

Number 9015, one of the 4-12-2 type locomotives built by the American Locomotive Co. for the Union Pacific to take the place of the Mallet engines used between Cheyenne and Laramie, Wyo., was also on exhibit. The road reports that these engines are operating trains in this part of the country faster and with considerable less fuel than was possible with the Mallets. The New York Central had one of its high speed Hudson type passenger engines at the Reading terminal and the Baldwin Locomotive Works had the No. 60,000, which was shown for the first time at the convention in 1926, again on exhibit and the Reading showed a Pacific type locomotive built by Baldwin. Bringing together these different types of locomotives offered an unusual opportunity for study and comparison of details and judging from the attendance and interest displayed in the track exhibits this feature of the convention is becoming more and more valuable.

R. H. Aishton, president of the A.R.A., in his opening address to the convention, complimented the mechanical division on the splendid work it was doing as a whole and also by the members of the various committees. In speaking of the general railroad situation Mr. Aishton said, "From outward appearance, in the minds of the public, everything is all right. Railroads are giving the best service in their history. No one is complaining about service. But there are other things connected with this situation in which you gentlemen have a very direct interest, in which you may be a very great help.

"One of the very first things is the apprehension regarding the constantly decreasing revenue of the railroads. Take the year 1927. I think the figures will show that the net revenue, that is, what is left after you have got through with all your operations, showed a lower average return than any time in the last 20 years, outside of the war period.

W. H. S. Bateman, President of the R. S. M. A., and R. H. Aishton, President of the American Railway Association.

"And yet, with all the public acclaim about service, we find the constant pressure and the constant tendency is toward lower rates. We have, in addition, brand new forms of transportation; motor transportation with free roads, air transportation. At the time I wrote this memorandum I said that from America to Europe the time had been reduced to a little over a day. Since I wrote that memorandum a woman has flown from America to Europe in 20 hours and 49 minutes.

"What is going to happen next week, next month, next year? None of us knows. But whatever may happen, and whatever conditions we have to meet, it is up to you gentlemen to find part of the answer. We have waterways and inland water transportation operated by the government. The railroads are not opposing these things, and the railroads have not offered a word of opposition to any of the other forms of transportation. All they ask is that the competitive basis be on a fair foundation. Why? Because if that form of transportation is what the public wants, and if it is in the public interest, the railroads are for it. But they ought so to shape their affairs as to get the greatest amount of advantage for the rail transportation, which after all has got to be the backbone of transportation in this country, by going into these matters, by investigating them, by cooperating or coordinating or doing whatever other thing may be necessary, adopting them if necessary, in order to supply the public transportation which it is bound to have—the most efficient, the fastest and the cheapest.

"I wish to leave this one particular thought: Too many of us forget that we can do much for railroads besides performing our daily duties. It is a mighty fine thing that at least once a year you gentlemen of the railroads forget your little trials and tribulations on your own railroads, and in addition to developing things that may be of benefit to your own railroad, that you sit down here for a week and go over these matters to determine what is the thing that will not only benefit your own railroad individually, but will benefit the entire railroad situation. And it is from that viewpoint that in what lies ahead of us you are going to get effective action—the ability of you men to subordinate self for a moment and figure out what is best for the transportation industry and for the American people.

"This is not only the ninth an-

- Atlantic Foto.

The Pennsylvania Railroad Exhibit. The Pacific Type Locomotive, 5498, At the Left, Is Equipped With the Commonwealth Cast Steel Locomotive Bed With Integral Cylinders.

niversary of the Mechanical Division, but it is the 60th and the 61st anniversary, respectively, of the Master Car Builders and the American Railway Master Mechanics' Association, and the same wisdom and the same energy and the same statesmanship that has brought your branch of the business from the Puffing Billies and the Tom Thumbs up to the Mountain types and the Mikados and the Pacifics and the Santa Fe today, continued, is what is going to meet these problems.

"None of us has a greater interest in what is being done than the government itself. We are apt to say, 'keep the government out of business' and all that sort of thing, but nevertheless the regulating body down there at Washington is watching what we are doing with great interest. If you want to keep the government out of business, the best remedy is to do the job yourselves."

The report of Mr. Callison's committee on the design of shops and engine terminals brought forth considerable discussion. While an excellent report was presented by this committee and the general plan for a 30-stall enginehouse approved, the discussion developed that changes would have to be made by many roads to meet local conditions developed both by variations in climate and operating conditions.

On Thursday morning the Mechanical Division listened to an address by Frank McManamy of the Interstate Commerce Commission. Among other things Mr. McManamy said, "We hear a great deal concerning the possibilities, the probabilities or the actualities of railroad transportation decreasing in certain respects. That is true; but that is not an unmixed evil. As a matter of fact, it has been well known by the men who were figuring the costs of transportation for a number of years that much of the traffic which is now going to motor coaches is not a profitable traffic. Short distance passenger business, local freight business, when you come to figuring the cost of two terminal services and a very short line haul, have for many years been performing with little or no profit.

"If that should, in the development of the transportation industry, go to some other means of transportation, we still have before us the very real need of the country for the long distance, the long haul service of the railroad, and when we consider the fact that within the last year, for the first time in the history of the railroads, our car loadings exceed a million cars a week, I don't think we have so much to worry about.

"We may change the character of the transportation slightly, but we will not change the need for the present means of handling it for many, many years, if ever.

"It would be a rash individual who would attempt to say what would happen in the transportation industry, with air and motor transportation. But when you go down to the Reading and Pennsylvania stations and look at some of those locomotives, you will begin to realize that the railroads are not asleep.

"When you consider that such locomotives are being developed, and that they are put in service hauling heavier trains at higher speeds and at lower costs, the manufacturers who build those machines and the railroad who buy them and the designers who design them, whether they are employed by the railroad company or locomotive builder, haven't very much occasion to fear any other means of transportation taking their business away from them, for a while."

One of the most interesting papers presented was the one by A. G. Pack, chief inspector of the bureau of locomotive inspection of the Interstate Commerce Commis-

Atlantic Foto

Three-Cylinder Freight Locomotive Built by the American Locomotive Co., for the Union Pacific and Shown At the Atlantic City Convention.

sion. Mr. Pack said, "The president of a great railroad system recently said in a public address that 'no railroad can be better than its motive power. Without adequate and well conditioned motive power it is impossible to operate economically or satisfactorily, and to give service to the public which is the duty of each and every one of us.'

"We are near the close of the century in which the first steam locomotive was placed in successful operation. Looking backward through the years, the record reveals the struggles, the failures, as well as the achievements of the most eventful periods in history. Motive power has passed through at least three important stages of development: the primary stage or period of outlines and of discoveries; the second stage, or period of inventions and the substitution of the locomotive, and the third stage, or period of regulation and standardization.

"The 50-year period beginning in 1840 and ending in 1890, was one of great railroad development. Young men, among the flower of the nation, abandoned other occupations to engage in railroading. The then known hazards of the occupation did not deter them. For the most part the danger was considered a mere incident of the employment. If injury or death resulted, under the doctrine of assumed risk, there was no fixed or definite liability. There were either no minimum requirements or a general lack of uniformity; and the standards of safety, if any, were only such as conformed to the varying notions and opinions of operating managers who as a rule were not mechanics, and adopted economy and expediency as the poor substitutes for, and at the expense of, safety and efficiency. The rule that the greatest efficiency can only be attained through a correspondingly high standard of safety, was not generally recognized or observed. Accidents were numerous and the death rate was appalling. In 1899 one death occurred for each 357 employed in connection with railroad operation, and one was injured out of each 35. Even in 1906 one death occurred for each 387 employed.

"Prior to the passage of the Boiler Inspection Act in 1911, safety legislation had covered only a limited field. The wholesome effect of the enactment and enforcement of this law at once became apparent. Five years after it went into effect and during 1916, only one was killed for each 631 employed, and after its enforcement in connection with other safety laws for 14 years, during 1925 only one out of 1,118 was killed accidentally. Not only has safety been promoted, but there has been a corresponding increase in the efficiency of locomotive equipment.

"The first year after the law went into effect, inspection showed that 67 per cent of the locomotives were defective. In 1927 inspections showed only 31 per cent defective. In 1889 there were 29,036 locomotives in use on 153,385 miles of railroad, and the locomotives moved 1,041 ton-miles of freight per capita of population during the year. In 1925 there were 70,361 locomotives in use on 250,000 miles of railroad, and the locomotives moved during the year more than 4,000 ton-miles of freight per capita of population.

"Railroad transportation has now reached that stage of development, both in regulation and operation, where the mechanical department is a most important factor, requiring the services of the best trained, experienced, expert, skillful and efficient operatives.

"The mechanical department ought to be what the name implies. I include in and as a part of the mechanical department the men who work, as well as the men who manage or direct the work. The officer in charge of mechanical operation may be ever so efficient in management, but he cannot succeed alone. He must have facilities and supplies. He must have the cooperation of the shop superintendent, the foreman, the master boilermaker and the master mechanic. He must have the support of the shop mechanic, the boilermaker and each helper on the job. There must be system, team work and application. The men who keep the locomotive in condition for service are the silent factors in train movement. Efficiency and safety bear testimony for or against them. A silent worker is often the most eloquent advocate of the department, because his work speaks.

for the whole organization. Every successful trip of a locomotive is a boost and each failure is a warning.

"The mechanical department of a railroad system is more than the locomotive keeper. When an imperfect or defective condition comes to its knowledge, it should not be content with mere repairs alone, but should endeavor to ascertain the cause and to take the necessary measures to prevent a recurrence. It should at all times strive for a higher standard of efficiency and safety. It must be in the vanguard in locomotive improvement. It should not wait to be told of modern appliances or betterments, but it must know of and apply them.

"A prominent railroad officer very recently confirmed what I think is now the consensus not only among the railroad operators but in the public mind, when he said: 'One of the things which has been most effective in our national progress has been the courage with which we have scrapped obsolete tools, replacing them with larger and more modern devices—the courage with which we have torn down small and inadequate buildings and erected fine and properly equipped buildings in their places. What is good practice for an everyday householder, merchant and manufacturer is just as truly good practice for the railroads.'

"Mechanical departments of railroads are now generally well equipped, standardized and efficient. They have also, either voluntarily or involuntarily, become an important part of the regulatory system. Dereliction is the exception rather than the rule. There is generally a sincere and earnest cooperation for the betterment of the service and safety of equipment. This cooperation extends beyond the mechanical department into various departments that have to do with locomotive inspection, equipment and operation. It is a matter of supreme gratification to know that we have this cooperation, and that our purposes and methods of inspection are now better understood than ever before. Government inspectors are interested in safety and not in management, and are proud of the record that has been made.

—Atlantic Foto.

Gilbert E. Ryder, Superheater Company, Newly-Elected President of the R.S.M.A., Is Congratulated by the Retiring President, Mr. Bateman, the Man With the Wide Smile.

"The time has passed when the duty to make improvements may be avoided or delayed on the ground that we are still experimenting and that it is better to keep what we have, even though it is obsolete. The carrier that refuses or neglects to improve its equipment does not belong to the present age. By so doing it voluntarily subjects itself to the penalties provided by law, if not the penalty of elimination provided by competition. It is true that there are yet a number of small carriers whose ability to acquire locomotive equipment is limited, but most of these carriers are earnestly endeavoring to comply with the law in the maintenance of such equipment as they have.

"The system of safety regulation adopted under the law is not intended to dictate specific devices or mechanical appliances, but to fix the standard or minimum requirements, of material, construction, design or type of device or appliance, necessary to protect and safeguard life and limb, and as a condition precedent to the use of the locomotive, leaving the carrier free to choose suitable equipment."

T. B. Hamilton of Chicago, vice president of the Pennsylvania Railroad, western region, reported in the session of June 22 as chairman of the committee on utilization of locomotives. This committee was appointed in 1924 to determine to what extent maximum utilization of locomotives is being obtained by the railroads and to recommend methods by which greater efficiency can be obtained in the use of motive power. By extending the runs of locomotives, with the installation of improved locomotive designs, the report showed, trains are being handled with less delay, movement of freight is being expedited, heavier

freight tonnage is being carried while at the same time consumption of fuel is being greatly reduced. All the figures in this report were published in this magazine last month.

G. E. Smart, chief of car equipment for the Canadian National Railways, who, as vice chairman of Division V, Mechanical, succeeded to the chairmanship when L. K. Sillcox of the Milwaukee withdrew from railroad service, was chosen chairman for the next term which, beginning this year, will be for two years instead of one. This term will hereafter expire in even years. A. R. Ayers, general manager of the Nickel Plate, a member of the general committee, was appointed vice chairman in the final session at the Traymore. The general committee selected for the ensuing term was C. E. Chambers, superintendent motive power and equipment, Central Railroad of New Jersey; C. J. Bodemer, acting superintendent machinery, Louisville & Nashville; E. B. Hall, superintendent motive power, Chicago & North Western; J. E. O'Brien, chief of motive power and car equipment, Seaboard Air Line; John Purcell, assistant to vice president, Santa Fe; R. L. Kleine, assistant chief of motive power, Pennsylvania; O. A. Garber, chief mechanical engineer, Missouri Pacific; and W. L. Bean, mechanical manager, the New Haven.

The Men Who Make Railroads

The Railway Supply Manufacturers' Association participated in about all the section and division meetings of the A. R. A., and at the same time conducted its own association business in Convention Hall, at the ocean end of the Million Dollar Pier. Gilbert E. Ryder vice president, of the Superheater Company was elected president to succeed W. H. S. Bateman, and Sidney G. Down, vice president of the Westinghouse Air Brake Co., vice president.

The New Motor Transport Meets

The first two days' sessions of the Motor Transport Division, A.R.A., were open only to railroad men, but subsequent meetings resolved themselves into conferences participated in by representatives of the National Automobile Chamber of Commerce, the American Automobile Association, the Society of Automotive Engineers, and the Railway Supply Manufacturers' Association. A. P. Russell, chairman, explained that the Motor Transport Division was eager to cooperate with others interested in the solution of problems incident to the development of highway transportation. A. J. Brosseau, vice president of the National Automobile Chamber of Commerce, said the difficulty in arriving at a satisfactory regulatory law is that of finding a common ground of thought. One of the difficulties in the past, he said, has been that the policy of the several interested groups has been formulated by lawyers instead of practical operating men. The automobile industry has on several occasions given evidence of its interest and desire to cooperate in finding a proper basis for regulation, Mr. Brosseau said, and called attention to the statement he had made at the hearings held by the Interstate Commerce Commission, that only a certificate of convenience and necessity, with adequate assurance of liability responsibility, is needed to insure healthy development of interstate highway transportation. Regulatory legislation covering trucks was opposed on the ground that these vehicles in most instances are not operated as common carriers. Mr. Brosseau hoped a fair and reasonable solution of the bus regulation problem can be found, and said that although the automobile industry has at times opposed specific regulatory bills, it is not opposed to the principle of regulation of common carrier highway vehicles.

S. G. Down, Elected Vice President of the R.S.M.A., and Mrs. Down. Mr. Down Is Vice President of the Westinghouse Air Brake Company.

For organization purposes the transport division, it was announced, had been divided into three sections, motor coach section, truck section, rail motor car section. The national committees having charge of these sections were named as follows:

Motor Coach Section—T. B. Wilson, vice president and manager, Southern Pacific Motor Transport Co., chairman; R. J. Littlefield, manager, motor coach service, Boston & Maine Transportation Co.; F. S. Hobbs, general manager, New England Transportation Co.; G. L. Whipple, general superintendent of transportation, Union Pacific System; M. F. Steinberger, special engineer, Baltimore & Ohio; E. D. Osterhout, passenger traffic manager, Reading; R. H. Clarkson, manager, Santa Fe Transportation Co.; C. B. Foster, passenger traffic manager, Canadian Pacific.

Motor Truck Section—G. C. Woodruff, assistant freight traffic manager, New York Central, chairman; C. J. Chenworth, engineering assistant to vice president and general manager, Atlantic Coast Line; J. G. Drew, vice president, Missouri Pacific; W. E. Cooper, assistant to general manager, the Milwaukee; Paul P. Hastings, general freight agent, the Santa Fe; J. P. O'Brien, general manager, Oregon-Washington Railroad & Navigation Co.; M. F. Steinberger, special engineer, Baltimore & Ohio; J. L. Hill, supervising agent, Long Island.

Rail Motor Car Section—R. L. Fairbairn, manager passenger service bureau, Canadian National, chairman; L. B. Burns, assistant general manager, Seaboard Air Line; E. Wanamaker, electrical engineer, Rock Island Lines; E. W. Lollis, general superintendent, the Milwaukee; G. L. Whipple, general superintendent of transportation, Union Pacific System; H. M. Eicholtz, assistant general manager, Chicago & North Western; J. K. McNeillie, superintendent, Delaware & Hudson.

Atlantic Foto

The Bus and Truck Exhibits in Marine Hall, Atlantic City Conventions.

Purchases and Stores Deliberates

About 400 members and guests were present for the opening session of the ninth yearly meeting of Division VI, Purchases and Stores, in the Vernon Room of Haddon Hall hotel, Wednesday morning, June 20. The chief interest of the session was in the address of W. G. Besler, chairman of the board of the Central of New Jersey. Mr. Besler said that the year 1926 had excelled all others up to that time in increased operating efficiency of railroads. Even in the face of that fact still greater results were obtained by them he said, in 1927, and even greater operating efficiency will be attained this year although the volume of traffic is likely to be less than in either of the two years mentioned.

"Since the beginning of 1923," said Mr. Besler, "the railroads have received a fine measure of cooperation from shippers and the general public through the extension of the shippers' regional advisory board movement, and have continued to receive the loyal support of a large proportion of their employes. These things have all been contributing factors in bringing about the present high standard of rail transportation.

"One of the most significant features of the improvement that has taken place in recent years in the transportation service afforded the public, has been its effect on the economic welfare of the United States. Due not only to this fact but also to the large expenditures made annually by them, the railroads constitute one of the principal contributors to our industrial activity and national prosperity.

"During 1927 the railroads, through direct purchases of materials and supplies, made a contribution to the industrial progress of the nation amounting to nearly one and one-half billion dollars. At the same time, they were also indirect purchasers of many commodities, large quantities of which go into railway equipment, and into new construction that is contracted for under lump-sum agreements and which is not classified under the head of direct purchases. In addition, approximately $2,953,211,000 was distributed among railroad employes in the form of wages which in large part are used in purchasing the products of industry."

Interesting and thoughtful addresses were made during the sessions by R. H. Aishton, president of the American Railway Association; L. R. Powell, president of the Seaboard Air Line, and others.

C. C. Kyle, purchasing agent for the Northern Pacific, was elected chairman for the next term, and William Davidson, general storekeeper for the Illinois Central, vice chairman. W. J. Farrell was reelected secretary. A. S. McKelligon, general storekeeper, Southern Pacific, Pacific division, retiring chairman, and these officers were chosen a general committee: F. S. Austin, purchasing agent, Boston & Maine; J. L. Bennett, purchasing agent, Central of Georgia; G. W. Bichlmeir, general purchasing agent, Union Pacific; C. B. Hall, stores manager, Pennsylvania; L. C. Thompson, manager of stores, Canadian National; and C. E. Walsh, purchasing agent, Pennsylvania.

Air Service in Japan

For the first time in Japan a regular seaplane passenger and freight service has been placed in operation. The route is between Osaka and Oita, Kyushu, a distance of about 300 miles. The trip requires 3½ hours, stops being made at four principal towns along the way. Flights are made three times a week.

The service is being operated by the Japan Air Transportation Research Institute. Seven Lufthansa-type seaplanes of 200 h.p. are used.

New Freight Terminal for Houston

The Katy Spends a Million

By W. A. Walker

ONE MAY fuss about restrictive regulations, switching charges, and rates, but the real attitude of the public toward a railroad is pretty clearly shown when it turns out in a friendly way to express its appreciation for facilities provided so that its business may be more efficiently handled. Such a demonstration was given during the dedication and opening of the new million dollar freight terminal of the M-K-T Lines at Houston.

Governor Dan Moody was there, and so were the mayors of Dallas, Houston, Fort Worth, San Antonio and Galveston, as well as a party of railroad officials. Luncheon was served for 450 business men and officials in the new warehouse, clean as a ballroom, and of course there were speeches. In the unavoidable absence of President Haile, Z. G. Hopkins, assistant to the president, told of the increasing business that had made the new improvements necessary, and Governor Moody and others spoke of the significance of the addition of this facility to Houston's transportation agencies.

The new terminal is located on a nine-acre site lying between Gabel and Hamilton streets extending from Magnolia street north. The site, which cost the railroad approximately $500,000, lies in the heart of the south side industrial district.

Concrete drives lead from entrances on the three streets to the team tracks. There are 11 tracks serving the terminal and they have a capacity of 200 cars.

The main freight wareroom of the station proper is 50 feet wide and 700 feet long, including a 100-foot open platform at one end. An eight-foot wide loading platform runs along either side.

At the south end is the head house, two stories in height, the offices. It fronts 80 feet on Magnolia street and 100 feet on Gabel street.

Running parallel to the main building and of the same length is a covered island platform or umbrella shed. In all, there are 50,000 square feet of covered floor space.

The new terminal is within a few minutes drive of the main business center and is reached by improved streets. Gabel street is to be paved 80 feet wide and thus afford another good traffic artery for this important industrial district.

Construction of the new terminal was directed by Chief Engineer Ringer with A. B. Underwood, construction engineer, assistant on the job. The building was designed by A. L. Sparks and constructed by T. H. Johnson, contractor, of Sedalia, Mo. The track work was done by M-K-T forces in charge of Assistant Engineer Underwood.

The Frisco's Yale Terminals, Photographed From the Air. This View Does Not Show the Entire Project, But Only the Central Features.

Frisco's Yale Yards Are Opened

Modern Terminal for Memphis

By W. J. Waters

THE Frisco System's new shops and terminal facilities at Yale, costing $1,750,000, were opened formally with impressive ceremonies May 27. The new yards will care for the work formerly divided between the three small Frisco yards at Yale, Harvard, Ark., and Memphis, and the latter two yards were permanently closed.

The new plant has been under construction since February, 1927, when the first grading began. Completed, it comprises 175 acres in a strip 1,000 feet wide and one and one-half miles long. Present needs of the road will require only 60 per cent of the space now available, but within seven years the entire development will be installed.

The Yale improvement contains 36 miles of track, exclusive of five miles of main line track which skirt the north edge of the yards. The eleven new buildings are worth $600,000 and contain machinery valued at $180,000 more. The new buildings are in addition to four which remain for use in maintaining the facilities.

An average of 150 men were employed on the construction work and the total payroll of the job approximated $400,000. Between 600 and 800 men will be employed in the mechanical and yard facilities of the new terminal.

The train yards have a capacity of 1,427 cars; north and south bound repair yards will care for 346 cars, and the coach yards 76 coaches. One hundred and seventy-two coal cars under construction can be accommodated in the north rip yards where that work is done.

The new enginehouse contains 24 stalls. Ten additional outside tracks supplement the 24 inside stalls, which are served by a 100-foot turntable. All repairs except Class C (complete repairs) will be given Frisco locomotives here. All piping in the roundhouse is electrically welded. There are six es-

The Otey Avenue Bridge, Looking Northwest From the New Yards. This Bridge Crosses the Entire Terminal Property.

pecially constructed pits which enable machinists to remove drivers, trailers and tank wheels. Another mechanical device of merit is the 10-ton Mono-Rail system, electrically operated, which serves the north half of the enginehouse. This device connects with all drop pits and affords direct movement of all repair parts into the machine shop to the west of the enginehouse. The building is completely equipped with the National Boiler Washing Company's facilities.

The power house at the southwest side of the enginehouse is 40x90 feet, built of steel frame with concrete floors and fully fireproofed as to roof and sides with Johns-Manville corrugated transite. The power house is topped by a concrete stack 180 feet high and is equipped with two Casey Hedges boilers of 460 horsepower each. The boilers supply superheated steam throughout the entire plant. They are equipped with Greene chain stokers, electrically operated. The machine room end has one steam operated air compressor with a capacity of 1,300 cubic feet and two electrically operated compressors of 750 cubic feet capacity each. By an elaborate system of overhead piping, enginehouse facilities, coach yards, train yards, rip yards and various buildings, are all served with air from the power plant. Another feature is the modern coal and ash handling plant, which enables direct delivery of fuel to the stokers and direct removal of ashes from boilers into the cars.

The new storehouse is 40x140 feet with basement under the entire length. The building is of steel and fully fireproofed with Johns-Manville transite, and the necessary unloading platforms have an eight-car capacity.

The Yale terminals machine shop is 60x200 feet of steel and transite, with concrete and wooden block flooring. The machine end proper measures 60x160 feet and the blacksmith shop 60x40 feet. The machinery includes 15 types, capable of performing all work which might be assigned to the Yale plant. The blacksmith shop is complete with steam hammers, brass furnaces, oil furnaces, a flue "rattler", drill presses and so forth, and the entire building is equipped with a Mono-Rail system and necessary jib-cranes.

In the enginehouse wash and locker building, steel lockers line the walls of 32x160 foot structure. It, too, has a steel frame, transite roof and sides, and a floor of concrete with toilet facilities and showers for 500 men. An emergency hospital room has been provided.

The car department wheel shop is 40x140 feet, of steel and transite with a heavy wood flooring. Wooden platforms for storing car wheels, with a capacity for 3,000 wheels are provided, with necessary unloading dock equipped with overhead air cranes for unloading wheels and axles.

The car department storeroom, to the southwest of the mill shop, is conveniently located to serve both rip yards. It is of frame construction, 40x60 feet with an unloading platform with six car capacity. It also has a 40x200 foot storage platform.

The classifying yards of the terminal are connected with a semi-hump to afford gravity switching across a 200-ton track scale 60 feet long.

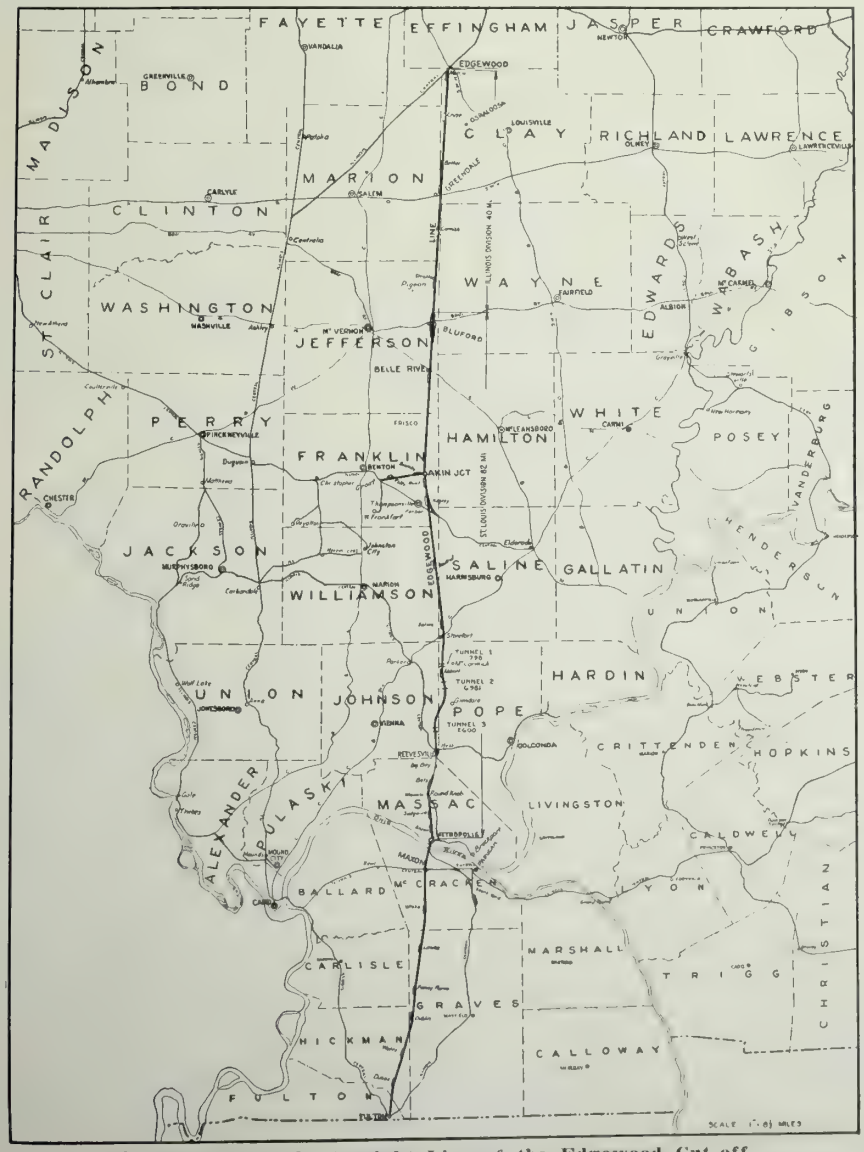
Looking West Over the Lumber Storage Yard, Into the South Repair Yard.

Illinois Central's New Extension

The Edgewood Cut-off

By A. F. Blaess

THE opening of the newly constructed line of the Illinois Central System from Edgewood, Ill., to Fulton, Ky., now ready for use, not only marks an engineering achievement worthy of note and a definite step forward in the improvement of this railroad's service between its northern and southern territories, but is touched with a romance that savors of the early days of railroading. The 169 miles of the "Edgewood cut-off," as it has been called, run for a great part through country in which the whistle of the locomotive and rumble of trains never have been heard. Some of this region is broken by the foothills of the Ozarks so that the work of location and construction offered problems that tested the skill of the engineers. How well this test was met is indicated by the fact that on the entire line there is no grade exceeding .3 per cent, that is, a rise of three feet in a thousand, nor a curve of over 1 degree 30 minutes. Three tunnels were constructed, 12,657 feet of trestle were built, 16,111,000 cubic yards were excavated, including 4,680,000 cubic yards of rock, 6,366 tons of pipe and 12,035 cubic yards of masonry were laid. The work was done by contract under the supervision of the company's own engineers.



The Map Shows the Straight Line of the Edgewood Cut-off.

By means of the cut-off, the through north and south haul is shortened by 22 miles, traffic will be moved more rapidly because the new line has fewer grades and curves, and another regular crossing of the Ohio River has been obtained. By use of the bridges at both Cairo and Metropolis, the railroad is assured of uninterrupted through traffic even in the event of trouble at either crossing.

Like most of the railway systems of the United States the Illinois Central lines have been built up by the purchase or consolidation of various railroads and, as a consequence, it has come into possession of sections of railroad that were built without considering the volume of traffic to be handled in later years. That portion of the Illinois Central System north of the Ohio River between Cairo and Chicago was constructed in the early fifties and from the time of its construction until the acquisition of the line south of the Ohio River in about 1882 it was op-

Taking the Kinks Out of the Denver & Rio Grande Western; in the Rockies Where Changes Cost Many Millions.

erated independently, with its southern terminus at Cairo.

The located line traverses Clay, Marion, Jefferson, Franklin, Williamson, Saline, Pope, Johnson and Massac counties in Illinois and McCracken, Graves and Hickman counties in Kentucky. The north part of the line in Illinois presented very few difficulties in securing a maximum gradient of .3 per cent with 1 degree 30 minutes curve. The south part beginning in Pope County, however, presented a very different problem. The topography is much rougher, being in the Ozark mountain region of southern Illinois. The main line of the Illinois Central from Chicago to Fulton runs in a southwesterly direction. The new location runs practically in a north and south direction, leaving the main line of the Illinois Central at Edgewood, Ill., using the bridge at Metropolis, Ill., thence approximately due south to Fulton, Ky.

The Safety Section Confers at Buffalo

Highway grade crossing safety constitutes one of the most important problems facing the railroads of this country, R. H. Aishton, president of the American Railway Association told the eighth yearly convention of the safety section of that association in session at the Statler Hotel, Buffalo. "The increasing importance of this question," said Mr. Aishton, "due to the constantly growing number of automobiles in operation is fully realized by the railroads, and everything is being done by them to bring about the greatest measure of safety possible at such crossings.

"During the last five years, the railroads have expended nearly $100,000,000 in eliminating grade crossings, approximately one-third of which was spent in 1927 alone. In addition, millions of dollars have been spent by the railroads for crossing signals and other devices designed to bring about increased protection for the public at highway crossings. Despite these large expenditures the number of such crossings is increasing. The growing density of highway traffic makes the problem all the more serious, while the growing interstate nature of such traffic broadens the problem to one of nation-wide importance.

"The railroads are working energetically and persistently at the problem of highway crossing, safety but there is a divided responsibility between railroad managements and the public that can not be ignored. Because of the fact the entire elimination of highway grade crossings is impossible for both physical and financial reasons, public interest in safety should impel some method being devised that will bring about the elimination of many existing crossings as compared with grade separation. New grade crossings should be prohibited except where unavoidable. There are many existing grade crossings which are not manifestly necessary for the convenience or welfare of a community and which could be closed without difficulty. The diversion or re-location of highways to avoid grade crossings should also be considered as the cost of diversion is usually less than for grade separation while at the same time it will serve the purpose of elimination as well as grade separation. Because of the enormous cost, grade separation should be limited to situations which can not be solved in any other way.

"Reports for 1927 showed 2,371 persons lost their lives in accidents at highway grade crossings, while 6,613 were injured. This was an improvement compared with the preceding year. Exercise of reasonable care by motorists in approaching and passing over railroad crossings undoubtedly will do much to reduce the number of accidents and fatalities at such points."

The Busy Illinois Central

The Illinois Central System operates 535 electric suburban trains every week day between downtown Chicago and some 50 outlying communities, carrying an average of 115,000 commuters daily. Suburban patronage on the Illinois Central at Chicago has increased rapidly since the service was electrified two years ago.

Last year the Illinois Central System paid $12,197,000 in federal, state and local taxes. If this entire sum had been applied to educators, it would have defrayed the entire year's cost of educating 154,000 children in public schools.

A Family Railroad in Missouri

By Charles Morrow Wilson

Dave Dingler, 43 Years A Railroader, Owns Half the Cassville & Exeter Ry. Is President and General Manager and, Incidentally, the Road's One Engineer.

UP IN the hill country of Southwestern Missouri there is a midget railroad. Dave Dingler runs it. The road is called the Cassville & Exeter, which is nothing surprising, since it connects the valley village of Cassville with Exeter, a town on the main line of the Frisco. The Cassville & Exeter operates as most railroads do. It maintains regular passenger and freight schedules; keeps up its track; has station headquarters and repair and salvage shops; at prescribed intervals it pays employes and stockholders cash on the barrel head.

As for width, being standard gauge, the Cassville & Exeter is as wide as any line in the country. But the total track mileage of the Cassville & Exeter is four and nine-tenths miles, which, according to the Interstate Commerce Commission makes it the shortest independently owned and operated steam railroad in the United States. And to this designation may be added, very probably the shortest in the world.

These is another peculiar thing about the Cassville & Exeter. The president of the line, the general manager and the sole locomotive engineer all live in the same house, wear the same size shirts, and things, speak the identical brand of American, and stand strictly on the same footing. For the fact is they are all one and the same person, Dave Dingler, railroader for forty-three years!

Aside from this, David Dingler is a stickler for democracy. He has been a section hand, a section

This is the station, all forlorn,
With the milk cans there in the early morn;
The Cassville end of a railroad line
With traffic that pays like a silver mine.

foreman, shop assistant, a freight fireman and a passenger engineer. Now, although he is 64 and president of a road, half the stock of which he owns outright, he still stays with the cab. Mr. Dingler states his age with restrictions. He argues that since a man is only as old as he feels, then rightfully at least forty-three years should be subtracted from his numerical age. For he contends that physically, spiritually and mentally he has always felt to be around close on twenty-one.

Dave Dingler and his partner, James C. Ault, recorder, station agent and half owner, do not favor the suppression of women. Both are married. Moreover, Mrs. Dingler is first and only vice president of the Cassville & Exeter, and Mrs. Jim Ault is treasurer. Therefore, on Sundays usually they hold a directors' conference along with the chicken dinner, prepared and consumed from first to last by officials of the road.

President Dingler favors keeping a weather eye on the overhead. He has a good set of tools, and does his own locomotive repairing. And this is approximately adequate, for the Cassville & Exeter owns no rolling stock other than "Old Twenty," the little locomotive more affectionately known as Mary Ann, and a neatly accoutered passenger coach which hitches on behind. But the Cassville & Exeter people would have it distinctly understood that Mary Ann is no laughing stock or curio. She is a ten-wheeler with some 32,000 tractive effort, 63 inch drivers, Southern valve gear and a Johnson bar, automatic bell and sanders, deep set throttle and powerful innards in general. She takes 'em there and gets them back and she has been doing it for 25 years. Dave Dingler does his own doctoring too. For instance, a few months ago it became evident that Mary Ann needed new boiler flues and a new firebox. Dave Dingler supplied the works.

As a matter of careful record the repair upkeep on Mary Ann for the last eight years, so far as repairs are concerned has been just eight dollars. The conductor keeps the passenger coach repaired and painted and a four-hand section crew attends to the tracks.

The schedule of the Cassville & Exeter is dependably punctual. Two round trips daily are made over the four-and-nine-tenths-mile span of track which connects Cassville, county seat of Barry county, Missouri, and Exeter, Missouri, a station stop on the main line of the St. Louis & San Francisco. Dave Dingler and his associates offer their patrons twelve-hour freight service and punctual passenger connections; mixed service, it is, but nevertheless dependable. Indeed their train holds the record of never yet having failed to reach its destination when once started, and it almost invariably starts. And when once arrived at Exeter getting back to Cassville is simple, providing the brakes hold, for the station at Exeter is 196 feet higher than the station at Cassville; hence the return trip resolves itself into a problem of brakes. The right of way follows the curve of a symmetrical farming valley, and there are no bridges to worry about. Once, daily, the Cassville & Exeter runs a separate all-passenger and all-freight train. They uncouple the passenger car from Old Twenty and "let 'er roll." Mary Ann is put to escorting freight gondolas down the line while the petite passenger bearer returns to Cassville spontaneously, thanks to the power of gravity and a strong-hearted brakeman.

The Cassville & Exeter hasn't any inherent opposition to a little extra work now and then. Whenever more than a convenient size cargo of freight shows up at either end of the line, an extra trip is made to handle the hang-over. Mary Ann usually takes her freight no more than three cars at a time. She could of course take more but a willing horse should not be overridden. In the way of rolling stock this Tom Thumb railroad has only the two, Mary Ann and the comely passenger car. The rest is willingly lent by neighboring lines.

Dave Dingler depends on his men. Every one of the road's seven employes has been with it during the entire eight years of Dingler's presidency. There are no strikes or labor trouble "be-

cause we all live like a family." Trains never smash into each other on the Cassville & Exeter because there is only one train.

Bert Anderson is fireman, Guy Reese is conductor, E. B. Hawks station agent, Bob Clark section foreman, and Shorty Moore, Bud Kranz and John Storky are the section hands. Their initiative and dependability are well proved. Should Engineer Dave Dingler fail to show up at running time, which isn't at all likely, Fireman Bert Anderson would simply step over to the right hand side of the cab, open her, and shove off, according to schedule.

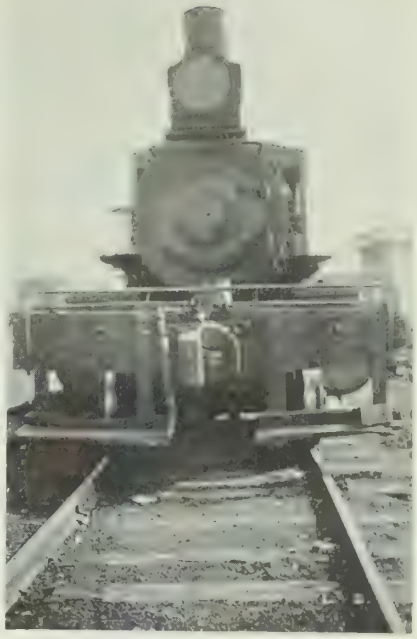
The station house at Cassville appears sufficient, but is in no way extravagant. It is a two-room frame building, painted red; half of it given over to a waiting room, the rest to the railroad's office—a conglomerate rhapsody of fading almanacs and calendars, thumb-printed day-books, visiting house-cats, and wistfully pursuing dogs. The platforms are commodious and inviting, and garnished with milk cans, berry crates, baskets of grapes and rhubarb and garden truck, cooped poultry, cased eggs and sundry products of neighboring hillside farms. Besides that, there is sometimes a passenger or two, and on rush days as many as a dozen on one run. But the officials of the Cassville & Exeter say, with amiable frankness, that so far as their line is concerned passenger hauling has never paid, it is in fact, merely a turn in courtesy, an appendage to make more complete the line's offering of service.

This is the fireman, smiling and stout, Bert Anderson knows what he's about.

But the freight business does pay and rather substantially. The fact is that the Cassville & Exeter has a rather startling volume of traffic and the business is gradually and steadily increasing.

And the country's shortest railroad has no excuses to make, no pardons to beg, no game to work, no stocks to sell. The track has been newly graded and ballasted; stock and quarters are well and efficiently kept up; and the dividends and pay checks come with satisfying regularity; neighborliness lives and the contributing farm lands become more and more fertile. However, the road is safe from the irritating provisions of the Recapture Clause.

The conductor does what he can to please.
He's most of the crew. His name is Reese.

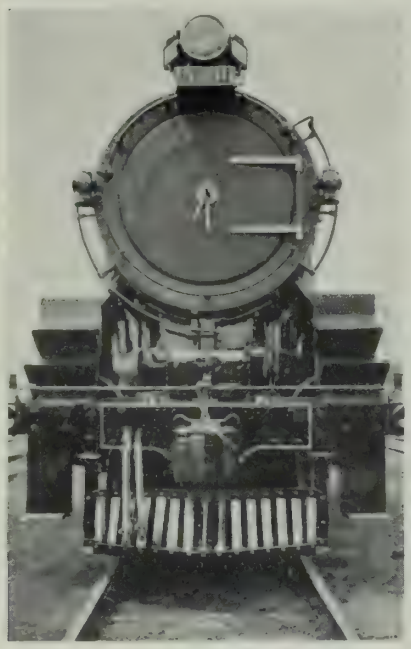


And this is the faithful Mary Ann.
She does the best that an engine can.
She's getting old, alas and alack,
But she takes them there and she brings them back.

The Pine Tree Limited

A glimpse at the magnitude of the investment in equipment which must be made before first class passenger service can be given the traveling public, is afforded in a recent article by J. J. Rowlands in the Boston Transcript. It is no secret that, in the following striking summary, Mr. Rowlands had in mind the Pine Tree Limited of the Boston & Maine.

"A train consisting of an engine and eight cars, including baggage car, three coaches, three Pullmans and a dining car, costs $375,000, a sum which would buy more than a score of valuable homes. The latest type passenger locomotive used on the Boston & Maine lines is valued at $70,000. A baggage car costs $25,000; coaches are $40,000 each, and a Pullman, representing the most luxurious in rail travel, and dining car, each cost $50,000. The individual passenger in such a train requires facilities representing an investment of $1400."



The President Cleveland.

Here's the President Cleveland

The "President Cleveland," the twenty-first of the President type locomotives in service between Washington and New York, has been completed under the direction of Col. Geo. H. Emerson, chief of motive power and equipment, and by the mechanical engineers and shops forces at Mount Clare shops of the Baltimore & Ohio at Baltimore. It was on display at the American Railway Association convention at Atlantic City.

The President Cleveland, which is the 5320, has several novel features, such as water tube firebox, Caprotti valve gear, and water bottom tank, and particular care has been exercised in the design to make the lines of the engine as smooth and pleasing to the eye as possible.

The air pump is between the frames back of the main drivers; the headlight generator is on the rear deck on the left side, convenient for adjustment from the ground. The piping, as far as possible, has been suspended from the running boards; the air pipes and a number of other pipes being welded to eliminate screwed joints where possible. The exhaust steam pipe to the exhaust steam injector is placed between the frames and at the rear of the engine is carried through the ash pan.

The firebox has two longitudinal drums at the top, 30 in. in diameter, and two top and bottom longitudinal headers 7¼ in. square, the top headers being connected to the top drums by seven 4 in. circulating tubes on each side, and the bottom header forming the firebox frame, being connected to the barrel by one connection 9 in. in diameter at the center.

These top and bottom headers are connected together with two rows of 2½ in. diameter vertical tubes, these tubes forming the sides of the firebox. Opposite each vertical tube in the top and bottom headers are plugs used for applying and rolling in the vertical tubes, and also by the removal of the top plugs only, the vertical tubes can be turbined at washout periods.

The novel feature of the firebox is that all tubes can be applied and rolled and the entire boiler cleaned without necessitating a workman getting inside the drums. It takes approximately four and one-half hours to completely wash out and clean the boiler and turbine the side tubes. There are no staybolts in the boiler.

The locomotive was built at Mt. Clare and given a careful dynamometer road test. It will be interesting to note that the Caprotti valve gear used on the engine had been in continuous service on Consolidation engine No. 2722 on the Baltimore & Ohio for about 15 months before it was applied to the 5320.

Development of Power

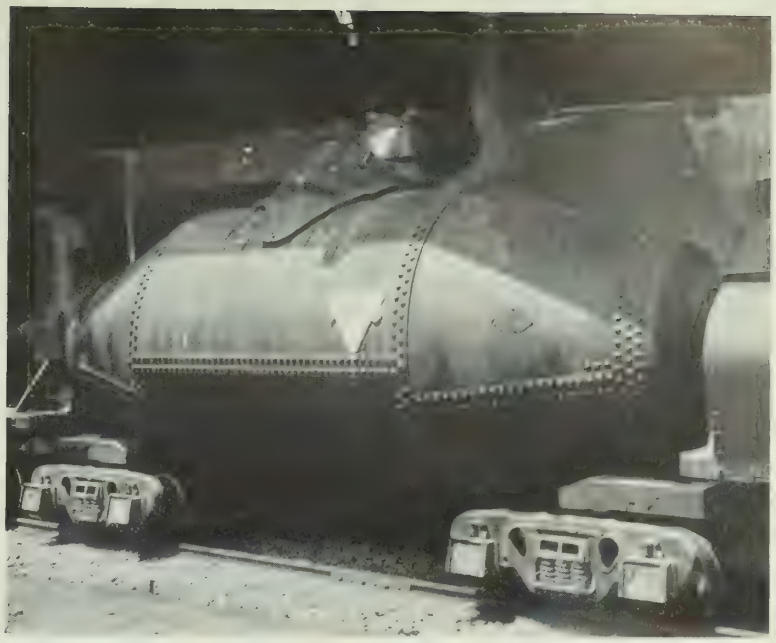
I believe the greatest effort made in locomotive work during the past two years has been the increase of utilization of locomotive power, due to an intensive study made by mechanical officers of practically every railway, aided by the investigations of the American Railway Association sub-committee appointed for this express purpose.

At the Right, C. E. Brooks, Canadian National Rys.

C. E. Brooks,
Chief of Motive Power,
Can. Natl. Rys.
Montreal.

The President Cleveland of the Baltimore & Ohio, Is Twenty-first of That Type Delivered.

Molten Metal Ten Miles by Rail



Pouring Molten Metal Into the Big Steel Bottle; Some Call It a Land Submarine. It Keeps Metal Hot for 48 Hours.

Development of A. R. M. Co.

By H. A. Wheeler

THE transporting of hot metal from Hamilton to Middletown, Ohio, over new tracks built especially for the purpose by the Baltimore & Ohio R.R. began formally, June 25, with ceremonies attended by 150 or more officials of the railroad, the American Rolling Mill Co., the Hamilton Coke & Iron Co., the Columbia Gas Supply Co., the Kopper Company of Pittsburgh, as engineers and constructors, city officials and others.

Those participating in the program met at the office building of the American Rolling Mill Co. at Middletown and were conveyed in a train of special cars over the Baltimore & Ohio to the blast furnace of the Hamilton Coke & Iron Co. at Coke Otto. At the blast furnace the visitors saw the molten metal run glowing from the furnace into the huge ladle and then sealed for transportation to the East Side Works at Middletown. The party, making the return trip to Middletown, saw the molten metal poured from the ladle into the open hearth furnace for refining.

Under an arrangement between the Hamilton Coke & Iron Co. and the American Rolling Mill Co., the former has rebuilt and enlarged its furnaces on the northerly edge of Hamilton and will hereafter supply molten iron to the rolling mill at Middletown.

The Hamilton furnace is on the Toledo line of the Baltimore & Ohio. The rolling mill is reached by its Middletown branch, but for reasons of safety and speed it was deemed not practicable to use the present lines, making necessary the construction of a new connection about three miles long between the main line and the branch, the reconstruction of the branch and a new connection at the rolling mill. In addition to the danger of moving this molten metal over the high speed main line, the route over the tracks already existing would have allowed the metal to cool too much for manufacturing purposes. These disadvantages are avoided over the route provided by the new connection, cutting five miles off the distance over tracks carrying no passenger service or high speed trains.

Remarkable progress was made in carrying out the construction of the new line. Six contractors were employed by the railroad to hasten completion by having all parts of the work under vigorous construction at the same time. The work involved the moving of 300,000 cubic yards of concrete for the bridge piers and abutments, the manufacture and erection of 3,800,000 pounds of steel in the bridges and the use of about 420,000 feet board measure of lumber in the trestles and bridge floors.

The new line involved the building of a bridge over the Miami River about 800 feet long, designed to meet the requirements of the Miami conservancy district. In order to insure progress and to obtain proper foundations, the piers for this river bridge were built with pneumatic caissons, where the men worked under air pressure sufficient to keep the

Here the "Ladle Car" Is Being Unloaded, the Molten Metal Going Into Another Ladle for Transfer to the Furnace.

water from entering the working chamber. Other bridges on the new line were provided over Yankee and Lebanon Canal roads and over Big Four Railroad tracks.

One of the remarkable features of this project is the weight of the cars used for carrying the hot metal. There are several places in the country where molten metal is transported from one plant to another, but the ladle cars provided for the movement from Hamilton furnace to the rolling mill at Middletown are of a new and heavier type than any heretofore used. They are about 56 feet long with four axles at each end, or 16 wheels in all, and when loaded with molten iron they weigh 685,000 pounds or more than 340 tons. The cars are lined with fire brick and have lids something like a giant thermos bottle. The molten metal is poured into them at the furnace and after movement to the rolling mill they are tilted so that the metal runs out like so much water. This is accomplished by having the ladle which carries the iron on pivots. The tilting is done electrically, and safety is provided by arrangements which permit the electrical attachment to be made only when the car is at a standstill.

This new arrangement between the furnace company and the rolling mill company, which was facilitated by the construction of this new line by the Baltimore & Ohio at a cost of about $1,500,000, will have a considerable effect upon the industrial activities in the Hamilton-Middletown district.

George M. Verity, president of the American Rolling Mill Co., said at the dinner given after the ceremonies, that the first "heat" of steel for the American Rolling Mill Co. was poured 27 years ago last February in the company's single open hearth furnace. "It was a small beginning," said he, "represented by 300 employes and $500,000 in invested capital. Its great strength was represented in its great faith in human ability, in human dependability and ingenuity, and in the courage of its imagination and its convictions.

"Being so small of stature it faced many difficulties in the field of an ever-increasing competition and of coming marvelous development in products and methods of manufacturing.

"Out of that small beginning has evolved an industry the largest of its kind in the world, unique in its history, its policies and its varied accomplishments, and distributing its service into practically all parts of the civilized world.

"The melting, pouring and transportation of a modern mixer ladle of hot metal from a point some ten miles south of Middletown to the steel plant at East Side Works is the direct result of the intelligent and effective cooperation of the three great forces of engineering, transportation and industry, contributed by three separate institutions; the Koppers Company of Pittsburgh, as engineers, constructors and operators; the B. & O., representing transportation, and ARMCO representing industry.

"There has been a blast furnace at a point near Hamilton for 20 years. During that time many overtures for cooperation with our company in one way or another were made. Our answer has always been: 'When we make any change in our blast furnace activities we want the new furnace right alongside our steel plant in Middletown so we can have the full advantage of the use of molten metal.'

"Industry must constantly strive for the elimination of every removable cost of production. Our cost development plans had reached a

point where we were definitely investigating the advisability of building a blast furnace and coke plant in Middletown. It remained for Mr. Rust of the Koppers Company, to show us how cooperation of two independent forces could best solve that problem at this location. You have today witnessed the answer."

The Nation's Lumber Yield

Production of lumber in the United States during the five years from 1922 to 1926 averaged 35,988,000,000 feet (board measure) yearly, of which the soft woods constituted 29,827,000,000 feet or 82.9 per cent, and the hard woods, 6,161,000,000 feet or 17.1 per cent. From 1923 to 1926, the yearly production of both kinds of wood was remarkably steady. The total production in 1926 was 36,935,930,000 feet.

Out of the total production of lumber in the United States in 1926, Southern Yellow pine ranked first with 11,751,647,000 feet or 31.8 per cent of the total production of this country; Douglas fir ranked second with 8,806,535,000 feet, or 23.9 per cent; Western pine was third with 3,172,975,000 feet, or 8.6 per cent. Oak was fourth with 2,190,504,000 feet, or 5.9 per cent, and hemlock was fifth with 2,158,652,000 feet, or 5.8 per cent. The production of these five species combined amounted to 28,080,313,000 feet or 76.0 per cent of the entire lumber production of the United States.

And Now the Hot Stuff Is Being Poured Into the Open Hearth Furnace for Refining.

Freight Rates and Lumber

That freight rates are not responsible for fluctuations in the last three years in mill and retail prices of lumber, such fluctuations having been usually more than the freight rates, is shown in a study just completed by the bureau of railway economics. The study is the first on this commodity to be made by the bureau. It applies only to rail shipments.

"Mill prices of lumber," says a bulletin "fluctuated irregularly from month to month throughout the entire period studied. On rare occasions did the average price remain unchanged for two consecutive months. The monthly fluctuations varied from a few cents to several dollars a thousand board feet on all sizes in every grade. These fluctuations were irregular not only as to amount but also as to direction, the prices for some sizes advancing, while for others they declined. These spreads were in many instances several times the freight rates on a thousand feet of lumber even from the most distant milling point. Retail prices of lumber also fluctuated at irregular intervals during the three years in all the markets. While the same prices often prevailed in a given market for many months, at other times the period of stationary prices was of short duration. The changes were usually abrupt and in most instances of a relatively large amount. On the other hand, freight rates on lumber remained substantially the same throughout the price period."

Only three states, California, Oregon and Washington, distributed lumber in every state of the Union although rail shipments from each of the following states, Mississippi, Louisiana, Arkansas, Michigan, Texas, Alabama and Idaho, were distributed in more than 40 states. North Dakota and Nebraska were the only states from which there were no rail shipments.

Cost of Yard Operations

By J. P. Quigley

I have not covered here any of the methods of the Union Pacific, Southern Pacific, Santa Fe or Western Pacific. My paper is based upon information I have gathered from methods used by several large railroads outside of this particular territory.

One of the large western railroads makes a report to the effect that by more efficient supervision and supplying yardmasters daily statistics showing costs, it has made an approximate saving of nearly half a million dollars in yard operation costs during 1927 compared with the previous year. Another large railroad, by similar methods, says it has made a saving of approximately a quarter of a million dollars in the same period.

Their cost accounting method is about as follows: Comparative statements of each day's costs, with the business handled, are on the desk of each yardmaster every morning. With the figures for the previous day before him early each morning, the yardmaster is in a position to take prompt action in correcting any situation which is increasing his cost out of proportion to the business being done; also, any errors in car handling are made apparent immediately, and will not continue for weeks or months as would be the case if the yardmaster was not in possession of the facts in connection with the handling of his particular yard.

This daily yard operation cost report of selected items covers the period from midnight to midnight and is made up during the night, between the hours of midnight and 7:00 a.m., from data turned in by engine foremen and others delegated to assist. This form is headed by the name of the yard, month and date. There are two columns, side by side, one headed "This Year" and the other "Previous year." The items recorded are: Yardmaster's, switch tender's, engine herder's, yard clerk's, enginemen's and switchmen's wages, total today and to date, total cars handled, cost per car, engine shifts today and to date.

Count of cars to include freight, passenger and all miscellaneous cars, including cabooses. One count for each car arriving at terminal yards in road trains or received in interchange from other lines. One count for each car departing from yards in road trains and delivered in interchange to other lines. Equipment passing through intermediate terminals and not handled by yard engines is not counted.

In computing the wages of enginemen and yardmen, only such time as is devoted to freight and passenger car switching is taken into account; time consumed handling work train, repair and shop track cars is excluded.

For general yard supervision, a monthly report showing each yard operation results is prepared, giving the total engine shifts, number of cars handled and cost per car, which includes the cost of fuel for yard engines, yard supplies and other expenses chargeable to yard operation, and the results are compared with those of the same month of the preceding year. These monthly reports are put in the hands of the yardmasters, and have had the effect of creating a more uniform yard car handling cost. Prior to their use there was a wide variation of costs between the different yards.

Another interesting method by which these two railroads measure their switch engine efficiency is by comparing the ratio of freight car miles to a switch engine mile. This is arrived at by taking the total freight car miles and dividing into this sum the total switch engine miles, the result will be the total car miles per switch engine mile. By this method they are maintaining an average of 110 to 120 car miles per switch engine mile throughout the year. In applying this method for measuring the switch engine efficiency on the Western Pacific, I found that for 1927 we made 168 car miles per switch engine mile. This high mileage probably is due to the fact that a large proportion of our business is made up of through traffic, which requires little switching at intermediate terminals, and which permits the operation of these yards with a minimum of switch engine service.

A paper delivered before the Pacific Railways Club last month. Mr. Quigley is superintendent of transportation and telegraph of the Western Pacific Ry.

T. H. MacRae Elected President

Thomas H. MacRae has been elected president of MacRae's Blue Book Co., Chicago. MacRae's Blue Book was founded by the late Albert MacRae and Thomas H. MacRae in 1911 as a buyers' guide for engineering and mechanical department heads in the purchase of railway supplies and material. The co-operation of these officials and their valuable assistance in compiling classifications most applicable to the railway field has contributed largely to the success of the publication. During the war Mr. MacRae was special assistant to the director general of railroads, and was manager and editor-in-chief of the United States Railroad Administration Magazine, a publication created by the government as a substitute for the various employe magazines which had been ordered suspended. At the close of the administration, March, 1920, Mr. MacRae resumed his connections with the Blue Book and also his former position as managing editor of the Santa Fe Magazine. He is a former president of the directory and media department of the National Advertising Association.

If there is anything that is a burden; if there is anything that is an obstacle; if there is anything that is difficult for a young man to overcome, it is an income that will enable him to live without work.—William Howard Taft.

Promises may get the friends, but non-performance will turn them into enemies. — Benjamin Franklin.

Skyscraper for the New York Central

Two Roadways Through the Building

By
W. J. Paterson

Thirty-five Story Building for the New York Central, in the Grand Central Group.

THE massive New York Central Building, 35 stories high, now under construction across Park avenue, between 45th and 46th streets, just north of Grand Central Terminal, presents a variety of unusual structural features that make it probably the most interesting building under way in New York. The building is unique in that two public roadways pass directly through it. These roadways are separated physically from the building, thus keeping out of the building all vibration from vehicular traffic; they are indeed, entities in themselves. This is one of the unusual problems that called for engineering skill of the highest order, the building, huge as it is, being built on "stilts." There are two levels of New York Central tracks and platforms below the building and roadway, the lower tracks being 50 feet below the street level.

To a layman the construction of a roadway passing through a building may appear simple, but when it is considered that the supports for both are complicated by track conditions, that no part of the roadway structure is permitted to come in contact with the building structure, and that parts of the roadways are on curves, it is not a simple problem.

Monumental Statuary Group Over the 46th Street Entrance.

The overhead clearance of the roadways is 14 feet above the pavement at 45th street, and since no columns are permissible in the roadways, special girders and bracing for the support of the building above the roadways have to be provided.

The curves in the roadways are banked to permit rapid movement of motor vehicles, this now being general practice in construction of important highways. To provide for this it is necessary to place the steel beams supporting the roadways on a slope, which the engineer has to plan as well as plotting the grades of the roadways.

Like other buildings in the Grand Central Terminal zone, one very important item is to provide against vibration from trains, inasmuch as the buildings in the terminal area are immediately over two levels of operated tracks. The steel grillages supporting the columns are placed on vibration mats, which are placed on the concrete foundations. These mats are made up of alternate layers of sheet lead and asbestos, making a mat about ¾ of an inch thick. This method has proved effective in preventing vibration of the track structure being carried through the rock to the building columns, where track and building column foundations are adjacent to each other. A layer of compressed cork is placed between them to prevent the concrete of the foundations from coming in contact.

Above the foundations, building columns pass through openings in the track structure and platforms, these openings being in all cases of sufficient size to clear building columns by about four inches.

Another problem in this building is to provide proper support for the superstructure. Under the entire building are two levels of tracks, which are used by 700 or more trains daily. The tracks in the lower level not being on the same alignment in many cases as the tracks in the upper level, this prohibits the use of through columns, and the upper level columns in these cases are supported on girders spanning the lower level tracks, which girders are supported by columns so placed as to clear the lower level tracks. On the columns in the upper level are placed heavy girders carrying the building columns above the street level.

The building exterior will be of Texas Mountain pink granite and Indiana limestone up to the fourth story. Above, the walls will be of buff brick of especially large size, which will give a solidity and distinction of appearance not obtainable with the standard sizes of face brick. Over the 46th street entrance there will be a large clock and monumental statuary group. The building entrances and store fronts will be of ornamental bronze.

The main elevator lobby, with walls of Jaspe Oriental marble and Travertine, with ornamental cornice and frieze richly decorated with gold and color, and with ornate lighting fixtures of bronze, will present a most imposing and dignified appearance.

Forty elevators will serve the building. The 32 passenger elevators, constituting the main building and tower groups, will be of the high speed automatic signal control and self-leveling type, equipped with all the latest devices for safety, regularity and ease of operation. One group of four cars will be operated solely in intercommunicating service, providing tenants on any floor with quick and convenient service. The elevator cabs will be finished in bright colored enamel and gold to give them a warm and attractive appearance.

Entrances to the main elevator corridor will be on Park avenue at No. 75 East 45th street and No. 76 East 46th street. There will also be direct passageway connection between the main elevator corridor of the New York Central Building and the Upper Level Concourse of the Grand Central Terminal, affording quick and sheltered access to the through and suburban trains of the New York Central and the New York, New Haven & Hartford, as well as to the subway lines.

It is expected that the building will be completed by January, 1929. It will house the executive offices of the New York Central, but will be devoted chiefly to tenant occupancy. Leases are already being signed.

The Picture on the Cover

On the cover, this month, we show the Santa Fe's California Limited in Cajon Pass, between Barstow and San Bernardino. Notice the well-kept roadbed, clean as a floor, and much cleaner than some.

It's A Good Story Anyway

Henry Ford has announced his intention to spend at least a million dollars on one airplane, to carry twelve engines, 100 passengers and a machine shop, and to cross the ocean and go half way around the world without landing at all.

Barge Lines Are An Economic Loss

Some Forgotten Items

Ten Years' Review

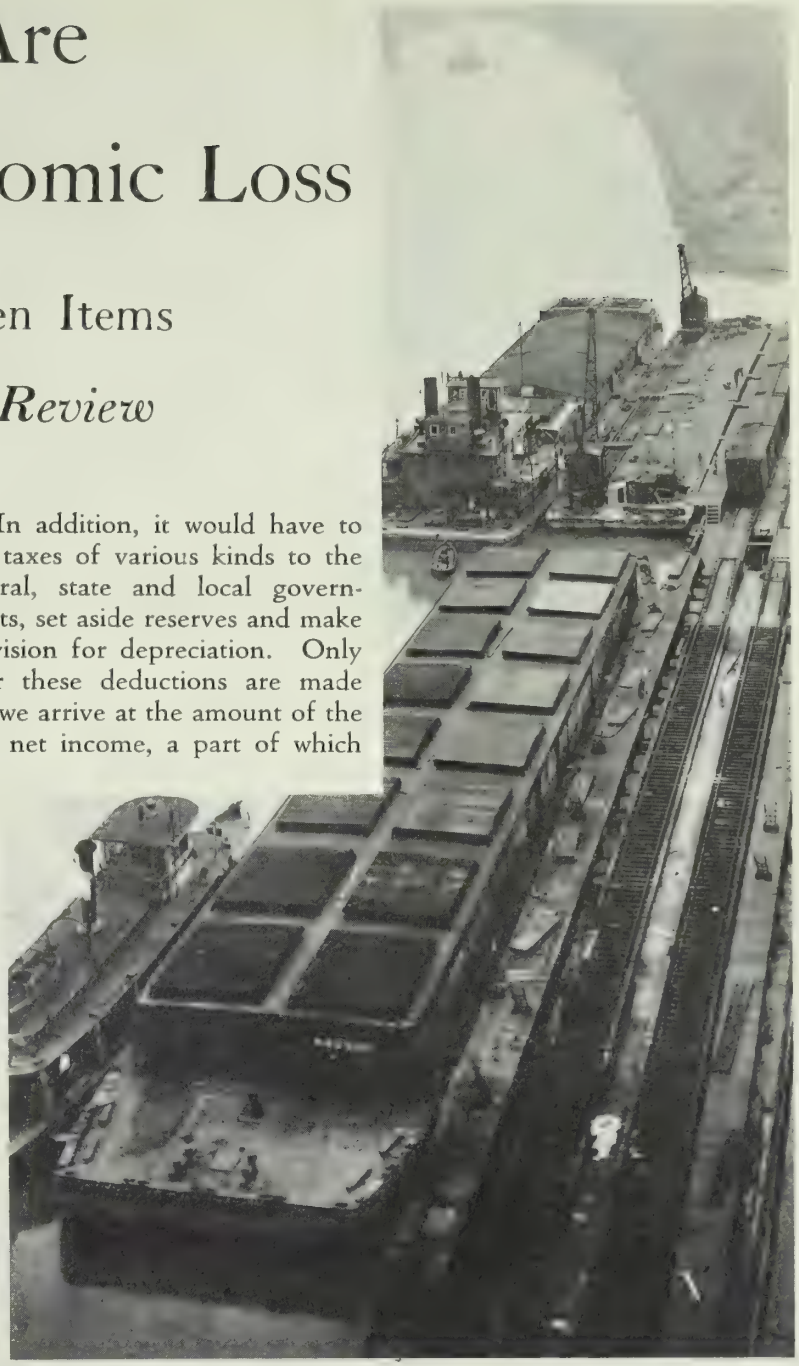
GOVERNMENT operation of the Mississippi-Warrior River Barge Service has now extended over a ten-year period, and "there seems to be no alternative but to judge the experiment an economic failure," in the opinion of Professor R. W. Harbeson, head of the department of economics, St. Lawrence University. After referring to the first five years of this operation as formative and developmental years, Professor Harbeson describes in detail the operations during the past five years which he considers to be as nearly normal as any period which is to come.

The following figures, compiled by Professor Harbeson, show the financial results of the barge service for the past ten years:

1918-1923	$4,586,963	deficit
1924	532,610	deficit
1925	34,519	deficit
1926	219,511	net income

"The above results," Professor Harbeson states in his analysis in the current issue of the Nautical Gazette, "are obtained simply by substracting operating and miscellaneous expenses from operating income. Nothing is said about interest or taxes. Accepting the statement in the corporation's 1926 report to the effect that its property had 'a present-day value of approximately $15,000,000,' the item of interest at 5 per cent would amount to $750,000 per year alone. Yet the ordinary private business would in this case have set aside that amount under the head of capital charges.

"In addition, it would have to pay taxes of various kinds to the federal, state and local governments, set aside reserves and make provision for depreciation. Only after these deductions are made can we arrive at the amount of the true net income, a part of which must be set aside in order to provide for extension and improvements and a part devoted to paying dividends sufficient to attract the requisite capital into the business.



Scene At the Municipal Terminal, St. Louis, Used Exclusively by the Mississippi River Federal Barge Line.

"Furthermore, we have said nothing about the outlays for the construction and maintenance of the channels on which barge lines operate, which have been provided at public expense, while the rail lines with which these barge lines compete provide their own right of way, pay taxes on it and bear heavy outlays on construction and maintenance accounts.

"Enough has been said to show conclusively that the 'profit' which the barge lines reported for the first time in 1926 is purely a fiction of governmental accounting. In no sense can the barge lines be said to have paid for themselves. Nor can we properly speak of any 'savings' accruing to the public by

The Memphis River Terminal, Incline Cradle and Apron; Modern Methods of Loading and Unloading Ships.

shipping over the barge lines, so long as no allowances are made for interest on the investment in terminals and floating equipment, for the taxes from which the barge lines are exempt and for their pro rata share of the expense of constructing and maintaining the navigable channels on which they operate. The rail lines with which they compete bear all of these expenses, provide for extensions and improvements, and in order to attract the requisite capital pay dividends besides.

"The 20 per cent reduction under the rates quoted by competing rail lines which is given to barge line shippers can scarcely be supposed to offset the additional costs mentioned above which the rates do not cover, although no one can answer this question definitely until proper accounting methods are instituted.

"The public deserves to have such a test made, in order that it may find out whether the barge line shippers are paying the full cost of transporting their shipments or whether they are being subsidized, and to what extent, by the federal government at the expense of the people as a whole.

"A final fact to be noted, especially in connection with the present proposals to extend the barge service into the upper Mississippi and its tributaries, is that these waterways are open for navigation only seven or eight months out of the twelve.

"The traffic of the barge lines is for the most part not new traffic but merely traffic diverted from competing rail carriers. The reduction in the revenues of competing rail lines resulting from this diversion will, if carried far, present us with the alternative of having railroad credit, and consequently railroad service, impaired, or of paying higher rates on the traffic left to the railroads. Clearly this would not be a pleasant choice to make.

"It is clear that this policy would

Six Barges Loaded With Automobiles, Brought Up the Illinois River From St. Louis to Peoria; Part of the Fleet of the Illinois Bargeand Boat Co., of Chicago.

not only be unjust to the railroads, but also would work untold economic injury to the country as a whole. It would scarcely be sound public policy to reduce railroad earnings, impair railroad credit and render railroad service inadequate and unsafe in order that a field might be provided for water services which at best could only be supplementary to the railroads."

Eighty-one Cars; 29 Minutes

Switching records of Boston & Maine yards which have undergone extensive improvement, particularly at Mechanicville and Boston, are being scanned with keen interest. A high spot was the record of the night of February 29 in the inbound Boston yards. One train of 81 cars had been completely switched 29 minutes after it had arrived at the yard. Two shorter trains were yarded and switched in 16 and 22 minutes respectively. The longest time between arrival and completion of switching on any train was an hour and a quarter, and 13 out of 16 trains required less than an hour each.

Government Regulations

"Where's the president of this railroad?" asked the man who called at the general offices.

"He's down in Washington, attendin' th' session o' some kind uv' an investigatin' committee," replied the office boy.

"Where is the general manager?"

"He's appearin' before th' Interstate Commerce Commission."

"Well, where's the general superintendent?"

"He's at th' meeting' of th' legislature, fightin' some bum new law."

"Where is the head of the legal department?"

"He's in court, tryin' a suit."

"Then where is the general passenger agent?"

"He's explain' t' th' commercial travelers why we can't reduce th' fare."

"Where is the general freight agent?"

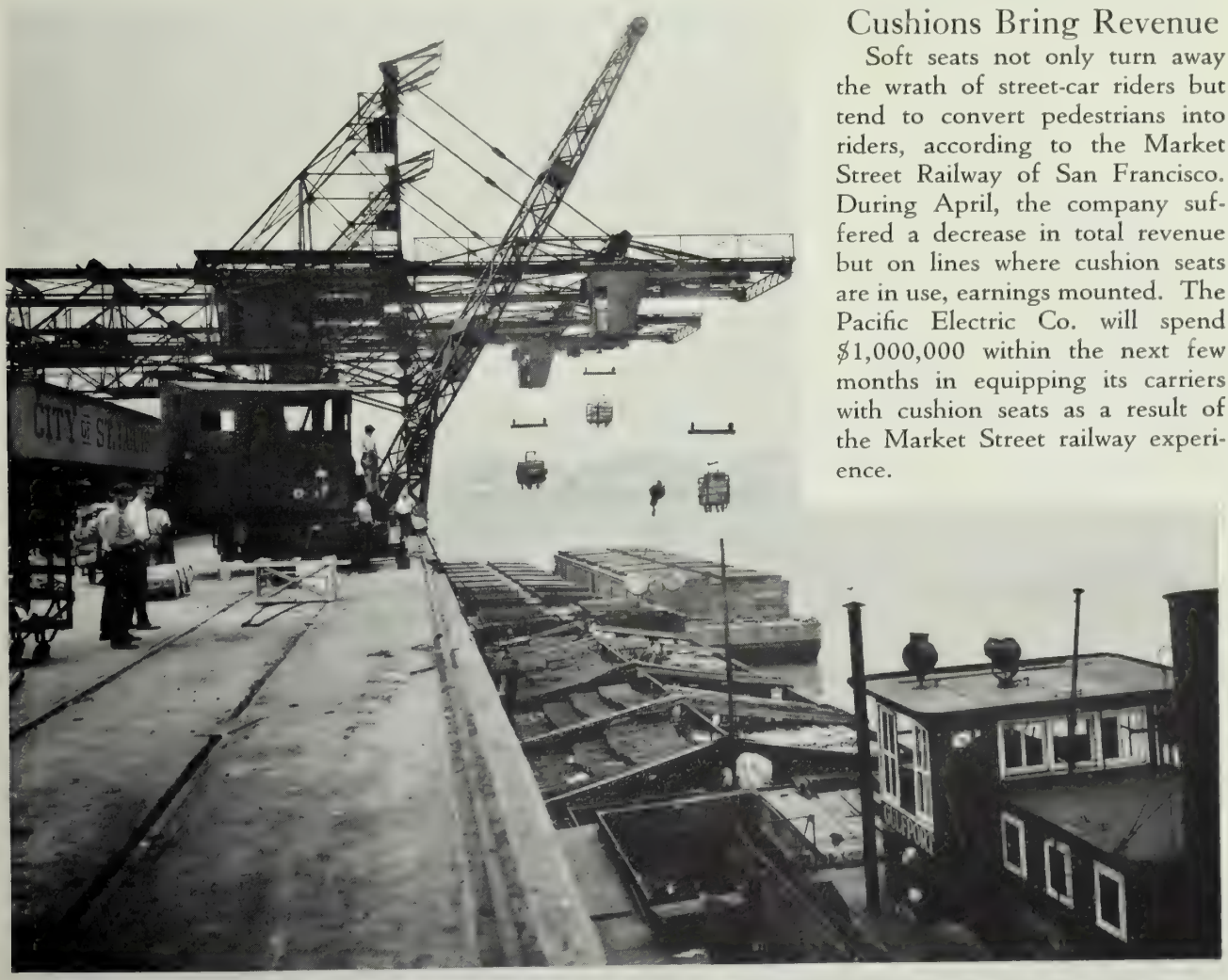
"He's gone out in th' country t' attend a meeting o' th' grange an' tell th' farmers why we ain't got no freight cars."

"Who's running the blame railroad, anyway?"

"Th' newspapers and th' legislatures."—Pittsburgh Press.

Cushions Bring Revenue

Soft seats not only turn away the wrath of street-car riders but tend to convert pedestrians into riders, according to the Market Street Railway of San Francisco. During April, the company suffered a decrease in total revenue but on lines where cushion seats are in use, earnings mounted. The Pacific Electric Co. will spend $1,000,000 within the next few months in equipping its carriers with cushion seats as a result of the Market Street railway experience.



The Self-Propelled Barge Gulfport, Receiving Freight At the St. Louis Municipal Terminal Destined to New Orleans; Five Days Downstream.

Many A Traveler Has Crossed Carquinez Straits on This Old Ferry in the Years Since 1879. It Is to Be Discontinued When the Bridge Soon to Be Built Is Ready.

Away Goes the Old Car Ferry

The Southern Pacific is going to build a bridge which will mean the abandonment of the famous train ferry between Porta Costa and Benicia in operation since 1879. The original train ferryboat, the sidewheel steamer Solano, is still in commission. The bridge will extend from Suisun Point on the south side of Carquinez Straits and east of Martinez, to Army Point on the north shore, east of Benicia. It will be a double track structure more than a mile in length. The bridge will be 70 feet above high tide for its entire length, with a central lift span of 327 feet long, to raise the deck 135 feet above high tide and give clearance for deep sea ships.

The plans call for a steel girder viaduct 750 feet long, ten spans of 408 feet length, one deck span of 384 feet, and the lift span, making a total length of 5541 feet. In addition, there will be long approaches, partly of earth fills, and in the higher sections of concrete arches.

The lift span will be electrically operated and will be one of the largest and longest spans of the kind ever built. In fixing the minimum height above high water at 70 feet, the engineers say that more than 95 per cent of the water-borne traffic on the river can pass under that height. The lift span will take care of the remaining five per cent. Not only will the bridge result in a large saving in operating expenses, but, the passenger train time saving will be 20 minutes, and the freight train time saving more than two hours.

However, He Lost His Job

J. M. Gary, formerly an engineer on the Central of Georgia, has sued that company for $12,000 for alleged damages growing out of his discharge in 1924. The case was remanded for retrial by the Georgia court of appeals after Judge A. L. Franklin of local superior court, had upheld a demurrer filed by the railroad's attorneys. Gary alleges that he was discharged without trial. Now a jury is asked to say whether a railroad company, under its contract with the Brotherhood of Locomotive Engineers, has a right to discharge an engineman for demerits

Menus for Children

Menus, especially prescribed for children by the leading health specialists of the United States, are now being served on Missouri Pacific diners, according to A. D. Bell, passenger traffic manager. This is being done, Bell said, in cooperation with the American Child Health Association of New York, to insure proper food for all children who travel on trains.

Railways and Public

"The public be damned" may or may not once have expressed the sentiment of our railroad executives; it surely does not express their attitude toward the public today, and the same thing may be said of most of our other great public utilities.

Editorial Comment

In Memory of Casey Jones

DOWN through the years without a quavering note still rings the song of Casey Jones. It wasn't poetry. It wasn't even good verse, but it came from the stub pencil of a negro engine wiper with a heart full of poetry; Wallace Saunders was his name. In his crude way he told the story of Casey's last trip and how he died at his job, one Sunday night, as many a railroader has, in a crashing wreck. Remember the opening lines?

> Casey Jones,
> He mounted to the cabin——

It happened 28 years ago last April. Casey, whose real name was John Luther Jones, was doubling back out of Memphis in the place of an engineer taken ill unexpectedly. At Vaughn, Miss., roaring along at 50 miles an hour, Casey struck the tail end of a long freight whose crew had hoped to saw by after Casey had passed the front end, but had miscalculated such speed.

> All the switchmen knew by the engine's moans
> That the man at the throttle was Casey Jones.

So Casey died, and a few days afterward Saunders, the engine wiper, was heard singing the song that has since become famous to a lilting air that came from his humble heart. Some later writer has changed the words, but the melody lingers on.

> Poor Casey was always all right,
> He stuck to his post both day and night;
> They loved to hear the whistle of Number Three
> As he came into Memphis on the old K. C.

Freight Car Capacity

The car load, as related to car capacity, decreased from 1920 to 1922. In 1923 it improved slightly, but since that time it has been going down despite the strenuous efforts of railroad men everywhere. Campaigns have been conducted, cooperation of the shippers has been pretty fairly given, officers have watched and warned and wept, but there it is.

New cars of constantly increasing capacity have been built and the average weight has increased in proportion to the capacity. Another interesting fact is that this condition is not limited to any one region or to any one type of lading. The condition is fairly nation-wide.

This brings us up squarely against the necessity for careful study as to causes and remedy. We believe the first place to look for the cause is in changing conditions. There has been a decided tendency in recent years to reduce volume purchases. Merchants have gone in for hand-to-mouth buying and increasing their turnover. The same conditions seem to apply in other lines. The railroads, through the remarkable advance they have made in speeding up movements and improving service, have abetted this tendency.

It is questionable whether any amount of education ever will readjust the problem, and whether in the interest of efficiency the railroads will not ultimately be obliged to adjust their equipment to the new commercial tendencies, and go back to the using of smaller car units.

Mexican Air Service Pep

They are showing unusual energy in their air mail service down in Mexico. Planes don't wait for anyone or anything. Behind such efficiency is the order of Eduardo Hay, sub-secretary of communications. "Run these planes on time," said Eduardo. "Don't wait for anyone or anything."

Hay was a passenger on the first mail plane from Mexico City to Tampico. He expected to be a passenger on the first plane coming back. But he reached the Tampico flying field three minutes late. The plane had gone. The pilot, an American, J. D. Schneider, knew his boss was to make the trip. But he didn't wait when the boss was late—not even one minute.

Hay was at the field ahead of time the next day. "Sorry," said Schneider. "I'm not," replied Hay, "I'm greatly pleased. Congratulations."

So Should Anyone

The traffic manager of the Cleveland Southwestern Railway & Light Co., E. L. Hukill, tells the world that his line has started air-rail service and is selling tickets while the "Big Boys" are talking about it. That's the kind of pep that makes progress in transportation. Mr. Hukill adds, naively, "I feel safer, 3,000 feet up in the air in one of these new planes than I do out on the street in my automobile."

Most of the pedestrians doubtless feel the same way about it.

It's Never Too Late

That was a wise jurist down in New Jersey who decided, the other day, that it is never too late to learn. It came about in the suit of Harry Callendar to compel payment of a bequest. Testimony showed that Callendar's relative, Aunt Sarah, wrote a bequest into her will about 25 years ago setting aside $2,000 which, at her death, should go to defray the cost of her nephew's education. When Aunt Sarah died, recently, years after everyone had given up the idea, Harry was 40 years old, and presumably past college age. So the executor refused to

give up the two grand. Harry sued and the court upheld him, declaring that education never stops, but like Mr. Tennyson's brook, goes on forever.

The case presents interesting possibilities. Harry is to decide for himself in just what particulars his education needs bolstering. He may elect to travel, not forgetting his patriotic duty to See America First. But the principal point in the case is this: How many men of 40 years will admit they still need education?

Again, Smyth vs. Ames

An old citation always is comforting if it supports your side, no matter how often the duly constituted authorities ignore it. The theory upon which valuations of railway properties are supposed to be based provides an instance, and of course the old, trustworthy case of Smyth vs. Ames is involved.

Testifying before the house committee on appropriations in the recent session of congress on the question of continuing the valuation work of the Interstate Commerce Commission, Ernest I. Lewis, a commissioner, said the work of valuing the railway properties of the country "came about very largely as a political movement to find out whether the railroads were overcapitalized."

"But when one goes into the history of valuation," Commissioner Lewis continued, "he finds its basic foundation far deeper and more substantial than that. Its origin really lies in the rule of constitutional law laid down in the Smyth vs. Ames case in which the United States Supreme Court said:

> "'We hold, however, that the basis of all calculations as to the reasonableness of rates to be charged by a corporation maintaining a highway under legislative sanction must be the fair value of the property being used by it for the convenience of the public.'"

Someone should send a copy of this old decision to the members of the commission instead of criticizing them for what they have done. What a thought for Father's Day!

The Average Street Car Fare

An analysis made by the American Electric Railway Association of 312 cities having, according to the last United States census, a population of 25,000 or over shows that 117 of them are operating on a ten-cent fare basis. In this group the ten-cent fare holds the record. Two cities find that nine cents meets their needs. Companies in 53 cities are charging eight cents; in 68 they find seven cents adequate; in 22 the fare has risen only to six cents, and in 50 it remains five cents.

Up to 1919 no cash ten cent fares were being asked in 283 cities having a population of 25,000 or more. That year 26 resorted to it. The somewhat more awkward nine cent fare was not found practical until 1920, when five companies tried it out. It is now in operation in only two cities. Twelve communities in 1918 introduced an eight cent fare, 32 a seven cent rate and 78 a six cent rate.

Since 1920 passengers between New Jersey and uptown New York have had transportation for ten cents. Between Jersey stations and the Hudson Terminal the Hudson & Manhattan Railroad Company receives six cents for each passenger carried; for local rides, five cents. In Richmond the fare is eight cents.

Sixteen billion passengers use the street railway systems in the United States during the course of the year. The industry represents an investment of some six billion dollars and carries its patrons over 43,000 miles of track.

Speed in Great Britain

An eastern financial daily paper of much respectability, especially friendly to railroads, said something interesting a few days ago, but unfortunately did not finish the subject. "Our train service," said this amiable publication, "has not really greatly added to its speed and American express trains are, upon the whole, from ten to twenty per cent, slower than those of Great Britain for corresponding distances, Liverpool, Manchester, Plymouth to London being equivalent to Boston or Washington in communication with New York."

We are quoting from the Wall Street Journal. Its editor must be familiar with conditions in Great Britain. A good many others in this country are not, however, and constantly talk about the great speed of English trains, and the long non-stop runs, without saying a word to explain how these accomplishments are possible. The subject may be disposed of by referring to just two or three important conditions, very aptly described by an American not long returned from abroad.

"One of these factors," says this writer, "is the size and power of their locomotives. In the last four or five years mighty locomotives with immense drive-wheels have been put into operation with results which have surprised even the British, who have long been accustomed to mile-a-minute trains.

"But a factor of no less importance in the fast, long-distance, non-stop runs being made than the wonderful roadbeds and motive power is the absolute elimination of all grade crossings. Every country road, every city or village street crossing, is either above or below the tracks. The traveler on fast British trains never gets an opportunity to look up or down a highway or street at grade, and he finds himself traveling at full speed through cities and villages on tracks high up in the air. Whether passing through a large city or a small population center, the traveler beholds a sea of roof-tops.

"Thus the British fast trains speed on unretarded by any municipal regulations. There are no stops and starts to waste time and eat up power. Time is

saved, fuel is saved, and more than that, the nerve of the engine crew is saved. The driver—we believe that is what the engineer is called over in Britain—knows that he isn't going to hit a motor car, a team, or a trespasser. Vehicles can't go onto the right-of-way and trespassers do not. Trespassing upon British railroad rights-of-way is sure to lead to an arrest, and the British just naturally keep off. Little wonder that the railroads of no other land can compete in time and non-stop runs with the fast British trains."

The Story of Taxes

Men seldom take a keen interest in taxation until they buy their first home. Immediately they begin to watch the city council, the paving contracts, the bids for lighting, sewers, and other things, all the direct concern of citizenship. Why, then, do so few ever give intelligent thought to the taxes imposed on railroads and other public utilities which serve the citizens every day?

The answer is found in the fact that an indirect tax never worries the people. Not until rates are advanced, which doesn't happen very often, does the citizen begin to notice things and wonder. The money is being taken out of his pocket to pay these taxes but he doesn't notice it until the ticket agent or the conductor asks for a cent or two more than the old price.

A man who has given 20 years of his life to studying ways of reaching public attention declared, a few days ago, that railroad tax bills never will be reduced until the facts are given the public in display advertising, day after day, week after week and month after month. "The public," said this gentleman, "reads display advertising. This has been proved. If it wasn't read it wouldn't be used."

Isn't it likely a home-owning citizen might be impressed when he learns that because of local and state extravagance the taxes of the railroads eat up the entire net operating revenues of 57,000 average miles of railway line?

Railway taxes, in 1927, declined about 3.7 per cent under 1926, but gross revenues at the same time fell off more than 4 per cent. The aggregate figures show a drop of about 14½ million dollars in taxes as against a loss of over 200 million dollars in gross earnings.

Luxuries That Are Burdens

Sometimes, indeed very often, in the publishing business it is discovered that where a firm prints several periodicals one or two are supported by the others. The rule holds true in railroading. American railroads have coddled the traveling public with comforts and luxuries undreamed of a generation ago, and now with passenger business dwindling fast because of competition from private automobiles, airplanes, buses or whatever the people seem to prefer, that branch of transportation is supported pretty largely out of freight earnings, and the net return gets a nasty crack.

A journey across the continent on limited or extra-fare trains is a fine experience, if you are an observing person, in demonstrating how far railroads have gone in trying to please the people only to provide an industrial example of Love's Labor Lost. It would be interesting to know, for instance, how many train barbers earn their wages; how many "ladies' maids" and valets do an hour's profitable work in a day or night; how many baths are sold on a trip; how big a drag the lounge cars are on the much needed revenues, all out-of-pocket expenditures which, added to the dining car losses, eat up a great deal of money which might be used to much better purpose.

We don't care to go back to the "good old times" of railroading, of wooden coaches and what not, but it might be a fine idea to cut down a bit on useless luxury. Not long ago a woman passenger in Texas complained violently because there was no radio on the train. She had become accustomed to it in Canada, she said. The train did have a telephone but when it was not connected promptly at one of the city stops it seemed as if this woman would have a fit. But she didn't take a bath on the whole trip and she ate only one meal a day in the diner. And she wasn't the only one of the kind on that train. Aren't the passenger departments going a bit strong?

How Millionaires Are Made

Eighty senior and junior officers of General Motors were induced, in 1923, to invest their savings, their earnings current, and all they could borrow into the stock of that lively industry. They all went deeply and serenely into debt, head over heels and back again. They pledged themselves to buy $33,000,000 of the stock. They put up five millions in cash, all the change they happened to have with them one day, and borrowed 28 million more. That stock is easily worth 250 million dollars today, the eighty officers are out of debt, and even the juniors who put up a measley little $25,000, are millionaires. Carnegie is said to have made 30 millionaires during his lifetime. General Motors did nearly three times as well in four years.

Buy stocks, but be sure you buy the right ones. If you're in doubt hunt up a Scotch banker and get his advice. It's the only thing you'll ever get from him for nothing.

Do You Belong?

Somewhere in his writings Carlyle drew attention to a peculiar fact in natural history. If you put a goose inside a circle drawn with white chalk, said Carlyle, he can't be scared out of it. He can't be made to step over the line. There are many other-

wise valuable railroad men in this classification. They won't take a chance and step over the line; they are cowards of circumstances. Don't be a goose.

The Ignorance of the Educated

The chief engineer of a western railroad said not long ago that only two state colleges or universities in this nation are giving a course of instruction in his profession at all likely to fit a young man for railroad work. This sounds rather strong, but perhaps the chief knew what he was talking about. He has had to hire quite a number of these graduates. "The engineering courses are not up to date," said he. "They are archaic. They aren't fitted to commercial practices."

The criticism is not new. It comes in appropriately just as other complaints of faulty educational methods are fresh in the public mind, and suggests that if enough noise is made the sound may reach the ears of those responsible for the courses in schools and colleges. The most recent slap came from the president of Harvard who landed pretty hard on a meeting of schoolmasters for not teaching the things students should learn in high school and in the grades, all of them supposed to be preparing boys and girls for college work or for the work of the world.

The so-called experts in education will argue themselves and everyone else black in the face defending the idiotic system of teaching in the primary schools, but the cold truth of the matter is that it has failed to do what they said it would do for the children. It has failed to teach them in a solid, sensible, lasting way the business of reading, writing, spelling and figuring. High school principals declare the children come to them lamentably weak in these subjects. If this be true the youngster has had his last chance because such fundamentals, with geography added, will come his way no more. When he goes to college he knows just enough to pick out a set of subjects fitted to the social and athletic requirements of the institution.

In college, as in the lower schools the average student remembers for a while the latest thing taught him, and very often it is something he should forget as soon as possible. In many state institutions the teaching of writing, to mention just one item, is far behind the times, so much so, indeed, that the students find themselves, at least temporarily, unable to prepare a manuscript properly for any established publishing house, newspaper or magazine. It is very doubtful whether two in ten engineering graduates can write a hundred words acceptably for publication; and this is important because there is little value in knowing something you are unable to pass on to the interested world.

Because of the system used few students know the things they need to know when they face this world. They may be up on figures, but to the most of them grammar, good, sound every day English, geography, current events are deep mysteries. Most of the students' cards upon entering college are haphazard things made up by themselves out of subjects needed for a certain number of credits, without mature help, for the simple reason that it is physically impossible for any faculty adviser to give the needed assistance to eight or ten thousand students. A small percentage of these students are graduated. They come out educated, but what do they know? The English satirist, Gilbert Chesterton, once declared the ignorance of the educated was the most astounding thing in modern life: they know so many things that are not true, that have no value.

In an eastern university, last month, students in certain courses were required to turn in papers containing about 20,000 words. Some of them were much longer; two papers of 10,000 words apiece and several of two and three thousand, on subjects of no possible importance or interest to any human being on earth. Some of these assignments came from immature instructors who could not themselves have passed the test satisfactorily. Imagine a student's whole schooling being retarded a term or two because he had forgotten the date for the subjugation of the Celtic Britons by the Romans, and could not, for the life of him, remember the history and ownership of the Channel Islands.

In a middle western state university a blank map of the United States was shown on the wall. Only two in a class of 34 seniors could give the names of the states, and not one in the whole class knew the state capitals. Perhaps it isn't especially important to know these things, but it might at least aid the graduate in getting about over the country without a keeper.

The old classical colleges will protest, of course, that the practical is being over-emphasized in the demands of those who are thinking of getting their children into the world fit to earn a living. There is no such disposition. Sensible parents have a fair idea of the importance of cultural studies, but they do not believe the business of paying your way should be entirely overlooked, as seems to be the case in many institutions. Every boy and girl is better off for having had four years in college even if he flunks in the last term. He has learned many things likely to be useful in after life; but by the same token he picks up many he must drop before he becomes a self-supporting member of society.

An engineering student may be graduated with honor; he may have a grip full of diplomas, certificates, memberships in this or that fraternity or society, but if he isn't equipped at least to undertake the most elemental job among engineers, which is too frequently the case, he will be as helpless as the man in a dream who finds himself in the middle of

the ballroom without his pants. It would be a fine idea to take one semester in college for spelling, geography, the history of government, and common every-day arithmetic. The next wise move would be to cut out all examinations with insistence only upon regular attendance at classes. No student ever had a fair chance to show what he knew or didn't know when he went up for examinations and faced the frosty phiz of an unsympathetic professor whose chief delight seemed to be to think up trick questions. We need a new deck and a new deal in education.

The Editorial of This Edition

RAILROAD men and their legislative agents are notoriously negligent of dangerous measures until they are a part of the nation's laws. Then they begin to complain. There is no reason under the sun why railroads should not exert every proper influence against legislation certain to injure their business. Every other business and industry attends to such things. Congress always knows precisely where Big Business stands.

Consider, for example the government's continued and increasing participation in shipping. The truth about this important question was clearly stated not long ago by Charles D. Morris of Chicago who speaks for the western railway presidents committee on public relations. "It should be understood," said Mr. Morris, "that the action of congress in authorizing an appropriation of ten million dollars to increase the capital and extend the service of the Inland Waterways Corpn. is an effort to have the United States embark upon the uncertain sea of government ownership and operation of water transportation. This fact ought to be thoroughly understood by American business men, who are well known to be in strong opposition to government ownership and operation of industry. Indeed, it is high time we begin looking this proposition squarely in the face. To deceive ourselves longer by calling government ownership by some other name would be the rankest folly.

"Notwithstanding the obvious truth in these statements the government is being continually urged to extend and expand the policy of public ownership, upon which policy it has already wasted hundreds of millions of dollars. Before the present congress there are some three or four propositions, each calling for the expenditure of millions of dollars, some of which are likely to be enacted into law. Stripped of their deceptive dress each of these measures stands boldly forth as a socialistic enterprise, with which the American people would have nothing whatever to do if they thoroughly understood it.

"At the time the Inland Waterways Corporation was established the people were told that the sole purpose in view was to demonstrate that river transportation was a sound investment for private capital and the same sort of an excuse for the present appropriation is being broadcast. Eight years have gone by since the corporation was established and many millions of dollars of the people's money have been invested in the enterprise. So far, however, no American business man has been impressed with the idea that it affords opportunity for the safe investment of private capital. There is little doubt but that in another eight years there will be just as good an excuse for another ten million appropriation as is being used today.

"Under the laws of this country the Interstate Commerce Commission is instructed to treat both rail and water transportation fairly, with a view to developing each. Special laws must be passed in order to put the government into either branch of the business. It would, therefore, appear to be nothing more than fair if we are to subsidize one class of transportation to extend the same courtesy to the other. It is the privilege of the American people to undertake the development of any transportation agency they desire, but the very genius of our government should enable us to keep in mind the fact that we cannot safely expend the money of all the people for the development of an enterprise that, in the very nature of things, can be helpful to but a small part of them, and then only by doing great injury to the other branch of the same industry upon which all the people must depend.

"Governmental investments in water transportation have never proved profitable from a financial standpoint. We undertake at times to make it appear that they are profitable but, in order to do so, we must resort to such methods of accounting as will not stand investigation. Some of our reports make it appear that the Inland Waterways Corpn. operates with a profit, but to make it so appear we take no account of capital investment, taxes or maintenance of roadbed, and until this enterprise can be made to show a profit with these items of expense provided for, there can be no hope of interesting private capital in its operation.

"Grant that the people are entitled to the very best transportation service possible, by the development of any agency that may be devised, it will at the same time be admitted that it would be worse than foolish to cripple the railroads, which are already serving the people adequately and economically, by subsidizing another agency, the record of which affords no definite promise that it can ever take the place of the steam railroads, which are operated without a dollar of cost to the tax payer."

A. W. Kirkland, A. B. & C. R. R.

Motors and Buses

In my opinion the most important development in railroading of recent years has been the substitution by railroads of motor cars and buses for local passenger business.

A. W. Kirkland,
Supt. M. P.
A. B. & C. R. R.

The Limited Cut-Off Cylinders

With reference to important developments in railroading since the last Atlantic City convention. No doubt any answer I might make to this would legitimately be a debatable point. I may say, however, that the development which has been responsible for the greatest economy on the Seaboard during that time has been the application of limited cut off cylinders and front end throttles to switching locomotives.

J. E. O'Brien,
Chief of M. P. & E.
Seaboard Air Line.

The Standard Box Car

The most important development in railroading since the last convention held at Atlantic City in 1926. This is rather difficult to express. While there are many things that have been developed since that date they probably were under progress prior to that time.

The matter of design of locomotives to meet local conditions most economically has been very pronounced and the extending of locomotive runs has reduced both terminal and maintenance expense and has developed very materially. Labor and fuel saving devices on locomotives have been received with great enthusiasm by the railroads.

The standard A. R. A. box car probably has been one of the most outstanding features in regard to the necessities of the railroads at the present time.

C. E. Peck,
Supt. W. P. & M.
O. W. R. & N.

A Shorter Name Needed

The long familiar monogram, "C. R. of N. J." or the designation, "Central Railroad of New Jersey," which marks its rolling stock will be seen no more if plans of that railroad's motive power department are approved. The department is experimenting with the designation "New Jersey Central" and these words now appear on many of the new or redecorated engines and cars. The term may be adopted soon for all the rolling stock, according to E. C. Satterfield, of the motive power department.

C. E. Peck, Union Pacific.

Where Concrete Held the Line

The Strength of Tetrahedrons

By C. W. Geiger

Remaking River Bank With Brush Behind Tetrahedrons.

YOU may never have heard of a tetrahedron in your life, especially one made of concrete, but and nevertheless, if the California highway commission hadn't installed a line of these interesting bits of construction, shown in the pictures, the chances are that the flood waters from St. Francis reservoir would have swept away the embankments at the west end of the Southern Pacific bridge on the main line. If this had happened no one could figure out just how extensive the damage might have been. These six-legged tetrahedrons which served such a fine purpose during the dreadful disaster in the Santa Clara Valley were installed shortly before the big dam went out. Not only did they save the railroad nearby but they gave similar protection to adjacent property.

The part the tetrahedrons played in averting greater damage than was done has attracted much attention. Standing directly in the path of the torrent, the bank protection consisting of a row of 30 reinforced concrete skeleton tetrahedrons, extending out from the river bank to deflect the flood water under the main bridge and protect the west approach, was struck by a torrent 15 feet high. Six of the 30 tetrahedons most centrally placed in the low water channel were torn to pieces by the torrent, snapping and breaking the 12 by 12 foot heavily reinforced concrete legs. Having their bases imbedded in the sand and being fastened to adjacent tetrahedrons with seven lines of one-inch cable, the six tetrahedrons were pulled apart as the 14 tetrahedrons down stream from them were swept toward the river bank.

With six broken and the others displaced, the row of 30 concrete skeleton tetrahedrons came through the most tremendous flood that ever rushed down the river channel.

Showing How Tetrahedrons Protected Shore Behind.

These tetrahedrons were intended to prevent flood waters from cutting through the west approach to the bridge, and this they did. The earth approach to the west end of the bridge was not damaged. The water was deflected by the tetrahedrons to its proper course under the bridge. Large quantities of brush and trees were collected by the protection work, and the area remaining between the row of tetrahedrons and the river bank and also on the stream side of the protection was silted up with about four feet of sand and gravel, thus straightening the channel and leaving conditions better than before the flood, as far as the river channel itself was concerned.

Standing 13 feet high, composed of six 16-foot legs a foot square, well reinforced with steel, and weighing about seven tons each, the concrete tetrahedrons are capable of withstanding a tremendous force. Should they be undermined or even toppled over by a flood, they still stand on a broad base always offering resistance to the rushing water.

The highway commission's row of tetrahedrons was placed with the 16 feet sides lining up on the upstream side, with the points of the equilateral bases downstream. A space of three feet was left between

How Concrete Tetrahedrons Are Constructed.

the corners of adjoining tetrahedrons on the upstream side. Six lines of old one-inch cable, secured from nearby oil fields, were stretched along the upstream side of the tetrahedrons, with one line along the downstream side of the row. The cables were fastened in place by wrapping around the legs and with cable clamps, the purpose of the cable being to tie the whole row of tetrahedrons together so they would act as a unit during a flood, and also to catch and hold the brush and trees carried down by the storm waters. At the bank end of the protection work, the cables were cast into a large block of concrete which anchored them at a safe point to the river bank. Some brush was piled near the bank to prevent any possible cutting in back of the protection work.

The reinforced concrete tetrahedrons cost about $112 apiece exclusive of the cables, the construction of a temporary road into the river bottom, and a ditch which was necessary to deflect the river away from the construction work. The cost of the protection work, including all expenditures, was a little over $7 per lineal foot.

The concrete skeleton tetrahedrons were made up of six legs, each 12 inches square and reinforced with eight ½ inch bars, the two outside corner bars of each leg being 17 feet 6 inches long, bent into and tied to the opposite corner bar of the adjacent legs, and six bars 14 feet long extending into adjacent legs, at the junction. A spiral reinforcement of a No. 8 wire was wound with a 6-inch pitch, around the longitudinal reinforcing bars. Each leg, measured from corner to corner, was 16 feet long, the height of the tetrahedrons from the ground to the vertex being approximately 13 feet. Steel reinforcement was then assembled where the tetrahedron was to be constructed. Sheet iron corner forms were then slipped over the reinforcing bars at the three corners of the base and wooden forms for the legs set in place. A sheet iron corner form similar to those used on the base corners, but having a small opening at the top to admit concrete, was used at the vertex of the tetrahedrons. Concrete was poured into the lower part of the tetrahedron from wheelbarrows. When it was too high for the wheelbarrows, it was shoveled into the forms, while the last few cubic feet of concrete to be placed at the top was elevated in a bucket attached to a portable swinging teeter beam.

Wrought Iron Workers Organize

The old and the new world abounds with relics of wrought iron which have defied corrosion for centuries. Some of the most interesting instances which have recently been brought to light is an anchor used by Columbus 434 years ago; Benjamin Franklin's first lightning rod, 158 years old, and General Putnam's chain, which during the Revolutionary War, was stretched across the Hudson River at West Point to block the advance of British warships. Of more recent origin are a quantity of nails which were removed during recent remodeling of the White House, after 113 years' service. All these things were made of wrought iron and, being corroded only to a small degree, their appearance gives no hint of their great age.

An old and honorable guild has grown up in the United States in the manufacture of wrought iron. They met not long ago at the Duquesne Club, Pittsburgh, and formed the Wrought Iron Research Association whose object is to gather and disseminate information about this time-honored metal. The executive committee consists of seven members with offices as follows: Geo. O. Boomer, vice president, Ewald Iron Co., Louisville; Frank W. Hamilton, president, Ulster Iron Works, Dover, N. J.; J. M. Gillespie, vice president, Lockhart Iron & Steel Co., Pittsburgh; L. M. Johnson, vice president, A. M. Byers Co., Pittsburgh; Snowden Samuel, secretary, American Swedo Iron Co., Philadelphia; L. E. Thomas, president, Reading Iron Co., Reading, Pa., and William C. Wolfe, mgr. of sales, Highland Iron & Steel Co., Chicago. L. M. Johnson was elected president and Snowden Samuel, secretary-treasurer of the association. Headquarters will be in Pittsburgh.

What Would This Paper Say Now?

Sixty-one years ago, a Boston newspaper published this item:

"A man about 46 years of age, giving the name of Joshua Coppersmith, has been arrested in New York for attempting to extort funds from ignorant and superstitious people by exhibiting a device which he says will convey the human voice any distance over metallic wires so that it will be heard by the listener at the other end. He calls the instrument a 'telephone,' which is obviously intended to imitate the word 'telegraph' and win the confidence of those who know of the success of the latter instrument without understanding the principles on which it is based. Well-informed people know that it is impossible to transmit the human voice over wires as may be done with dots and dashes and signals of the Morse code, and that, were it possible to do so, the thing would be of no practical value. The authorities who apprehended this criminal are to be congratulated, and it is to be hoped that his punishment will be prompt and fitting, that it may serve as an example to other conscienceless schemers who enrich themselves at the expense of their fellow creatures."

A secret seaplane is being built for Italy in Switzerland with 12 engines, and room for 100 passengers, which, in time of war, can be transformed quickly into a powerful fighting machine for the protection of Italy's interests in the Mediterranean.

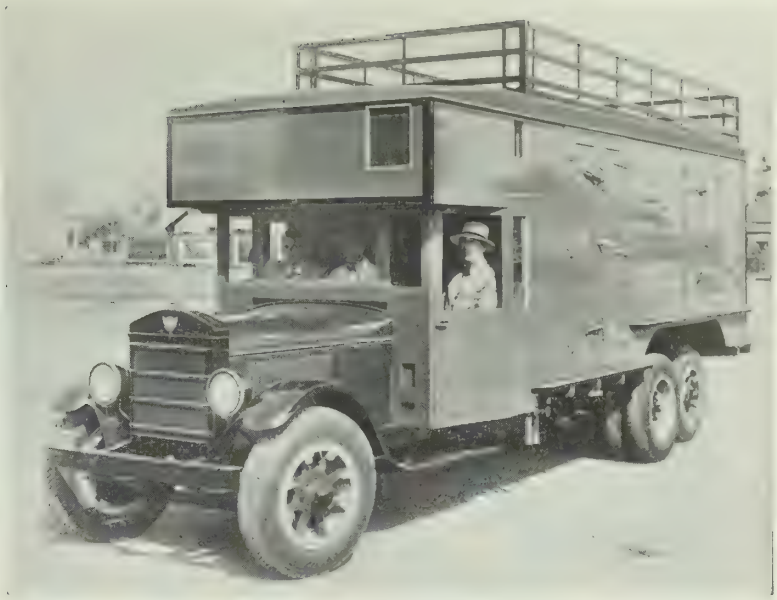
Handling A Million Packages A Day

By

R. E. M. Cowie

President

American Railway Express Co.



Reo Speed Wagon, Six Wheels, Hauling Perishables From the Imperial Valley to Los Angeles With Refrigeration. Sleeping Bunk Above Cab for One Driver. Top Rack for Bananas.

AS WOULD naturally be expected in expedited transportation, the motor truck has become a most important unit in the railway express service of the country. To augment the swift rail haul, the express companies have always maintained a highly organized pick-up and delivery service, thus making a complete chain of transportation direct from the door of the shipper to that of the consignee.

Because of the extent of this business, it is not surprising that the American Railway Express has come to be the largest commercial operator of trucks in the United States. Its huge fleet, mobilized chiefly at the principal business centers throughout the land, comprises 5500 units, to which additions are made from time to time. Equally significant is the fact that the express company is also the owner of the largest collection of horse-drawn equipment, but it has long since started to replace horses and wagons with the speedier motor vehicles.

As time is one of the most important elements in express service, many problems naturally arise in the rapid pick-up of business as it is carried on in the large cities. The express trucks must operate in the most congested centers. The business must be collected at offices and factories in tall buildings and out of the way places. It must be receipted for and brought to sorting stations or railway terminals in time to permit of way-billing and loading in cars on outgoing trains. Much of this business cannot be obtained until late in the afternoon, and intensive operations must be carried on in order to catch regular scheduled departing trains.

The incoming business also presents its problems, as a great volume has to be brought from the terminals, sorted and delivered early in the business day. The transfer between terminals is a necessary part of the system and in this the motor truck has become well nigh indispensable. Some of the biggest trucks, usually five-ton models, are used for this terminal interchange.

The American Railway Express Co. handles on an average a million shipments a day, but even that does not give a clear idea of the immense volume of the business. The range of commodities handled, the wide variety in their weights and shapes, and the heavy movement of perishable goods of almost every kind, present difficulties encountered in no other branch of railroad transportation.

Efficient operation and maintenance of trucks are vital matters to the carrier, but long experience has developed a system for every problem. Thus, servicing of trucks, garage management, inspection, repair and overhaul have become more or less of a science, carried on under the direction of a special department.

Bus Tax Appeal Denied

The state board of taxation at Pasaic, N. J., has refused to reopen the appeal of the Paterson-Passaic - New York Transit Co.,

New Home for the De Camp Bus Lines at Livingston, N. J. to Cost About $85,000.

which sought a reduction of personal taxes for 1927 on eighteen buses operating to and from New York City, on the ground that the automobiles were not fully paid for at the time. The company made its appeal, but failed to appear, and the assessment of $90,000 was upheld by default. The transit concern then moved for a reopening of the case, but after a hearing, the highest tax board refused to reconsider its original action. The board ruled that vehicles purchased on the instalment plan are taxable at full value, even though they are only partly paid for.

Building for a Bus Line

Architect's plans have been filed for new headquarters of the De Camp Bus Lines, Livingston, N. J. The site selected is at Mt. Pleasant avenue near Livingston Centre directly on the route of the Morristown and the Caldwell bus lines, operated by this company. The building will have a frontage of 120 feet and 150 feet depth, providing space for storing 48 buses of the new Yellow Coach Co. designs. The tract purchased includes a large open platform for temporary laying over of buses for passengers' transfer or for changing drivers.

The building is to be of face brick with trim in Indiana limestone, and it is said will cost about $85,000. Facilities will be provided for bus operators' lounge and rest rooms, shower rooms, large maintenance shop, parts and tire stock rooms. Offices and administration quarters will be provided for on the second story. The building is in the course of construction and completion is being rushed to be ready in July.

Bus Makes Excellent Record

By Willis Parker

A sixteen-passenger bus operated by the San Isabel Transportation Co. of Pueblo, Colo., made what appears to be a high record for continuous performance, not missing a day's service in a year's operation between Pueblo and Ordway, about 50 miles, never arriving at either terminal behind schedule, and the driver at the wheel every trip with the exception of one round trip when he laid off for a day.

The bus was operated as a supplement to railroad service between the two towns and had a definite schedule sufficiently ample to allow 20 minutes for delays along the road. The success of the scheduled operations for the year is attributed to the driver's especial interest in his machine, his expert mechanical ability, reliability and "workability," according to V. R. Blackburn, manager of the transportation company. The driver is T. E. Mitchell.

Do not conclude from these statements that everything was lovely. It wasn't by any means. There were breakdowns, tire troubles, bad roads, storms and everything else that serves to make a bus driver's life none too rosy. Broken rear axles probably was the most frequent trouble encountered. In a year four rear axles were broken, owing to the frightful conditions of the highways. But a spare axle was always aboard the bus and it could be put on in 20 minutes.

The overnight terminal of the line is Ordway. The schedule calls for departure from Ordway for Pueblo about 9 o'clock in the morning. But Mitchell is usually on the job at 7 o'clock, going over his bus, examining connections, tires and motor. In fact he is so particular with the motor that it shines like burnished nickle under the hood. Never is there an accumulation of oil on the outside of the cylinders. He is driver and mechanic, has to be, for his route lies in a region that is sparsely settled and where it is sometimes 20 miles to the nearest ranch house.

When the bus arrives in Pueblo, the company's headquarters, gar-

Automatic Loading Device. The Body Is Pushed Off or Pulled on By Power From the Truck's Motor.

Ewing Galloway Photo

The Right of Way. You Still See These Quaint Contrasts in Transportation in Some Parts of This Big Nation; We Leave It to You to Say Where.

age and shops, it proceeds to the shops as soon as it has unloaded its passengers. There the mechanics check it over thoroughly and catch all minor defects before they become major troubles.

The bulk of the company's bus business, however, is in the summer when it operates several small buses and touring cars into the San Isabel National Forest for sightseeing parties.

Here, as with the Pueblo-Ordway bus, distances between ranch houses are great. Getting word to Pueblo headquarters when assistance is needed is a problem. Mr. Blackburn has solved it in part by capitalizing human nature to assist others in distress. When a bus has trouble along the road, the driver is expected to hail the next automobile driver who passes, regardless of which direction he is going. To this driver he gives a card bearing the company's name, telephone number, and the nature of the difficulty, and asks the motorist to stop at the first place where there is a phone and send a message to headquarters. Lest the first motorist disregard the request or have difficulty getting a telephone connection, the bus driver hails the next motorist passing and gives him the same kind of a card and makes the same request. At least one out of two motorists will be accommodating and send the telephone message. The average runs higher than that, however, for in nearly every case where drivers have hailed two motorists to request them to telephone the company, both telephone calls were received.

Buying on Time

About 90 per cent of the motor vehicles sales in Finland, Poland, and Rumania are on the installment plan; in Denmark the ratio is from 80 to 85 per cent; about 75 per cent of German passenger cars and practically all the trucks are sold on time, as are over half of the cars and trucks in Austria, France, Italy, and the Netherlands. In the United Kingdom, 60 per cent of the passenger cars and 50 per cent of the trucks are financed on the time basis. Spain is the only country where installment selling has made but little headway, only 15 per cent of total sales being on that basis.

That the installment selling system in Europe, as in the United States, is sound is indicated by the figures showing repossessions, which are estimated at not more than 1 per cent. The greatest number occur in the taxi field and the smallest in the passenger car.

Queer Ruling in Canada

"I have a right to drive on any part of the street so long as I have regard for the rights of others."

This was the reply of a member of parliament in Ontario to the warning of a patrolman that he was driving on the wrong side of the street.

The Ontario court of appeals at Toronto, in the case of two Hamilton men to whom $16,000 had been awarded by a lower court, now upholds the contention of the M. P. The appellate court, in reversing the judgment, holds that the highways are not, by law, divided into right and wrong sides. But remember this was in Canada.

"It is one of the commonest fallacies existing to think that the

Robert E. M. Cowie, President American Railway Express.

highways are divided into 'right' and 'wrong' sides," said A. H. M. Graydon, police chief, in London, Ontario, after the decision. "The fact that a motorist was on the supposedly wrong side of the road does not make him liable or prove him to be negligent."

So long as a man does not endanger the safety of others, he may drive his car into the ditch.

Rules for Buses in Texas

The railroad commission of Texas has adopted 43 rules governing motor bus service in Texas. Motor buses were placed under the supervision of the railroad commission by the late legislature. The rules have been approved by the attorney general and the Bus Owners' Association of Texas. Some of the more important provisions have to do with safety such as: Bus drivers must be at least 18 years old; no driver shall be employed that drinks liquor or is addicted to drugs either on or off duty; no intoxicated person shall be permitted to ride on a bus or carry liquor on a bus.

All drivers are required to stop before crossing railway tracks. Drivers must turn off the bus lights at night at railway crossings to prevent failure to see the light of an approaching locomotive.

Drivers must not smoke while on duty, drivers must not engage in conversation with passengers further than in giving necessary information.

All buses must be cleaned and disinfected once every 24 hours; and no driver shall be permitted to carry parcels and packages which will interfere with the comforts of passengers. All buses must leave the terminal with at least one spare tire.

Bus Service on B & M Ry.

December 31, 1926, we were operating 16 routes covering 790 route miles, says R. J. Littlefield, manager, B & M motor coach service, against 27 routes covering 1111 route miles on Dec. 31, 1927. During 1927 we opened eight new routes and extended three routes to new territory, thereby increasing our lines 321 miles. On Dec. 31, 1926, we owned 56 buses, against 74 on Dec. 31, 1927. For the benefit of our mechanically inclined friends we might say that these 74 buses are made up of 31 four-cylinder and 10 six-cylinder poppet valve motors and 33 six-cylinder sleeve valve Knight motors. The bodies on these cars consist of 24 de luxe parlor cars, 14 semi de luxe parlor cars, 31 regular pay-enter street car bodies and five sedan type, with doors along the side.

During 1926, we ran 1,010,744 miles against 1,719,965 miles during 1927. Our coaches ran in all of the New England states, New York and New Jersey in regular and special service.

To give a further idea of our growth: Our average daily revenue during August, 1926, was $4,530 against $5,841 in 1927. Our total revenue for 1926 was $268,-817.17, against $505,585.60 for 1927. The average daily revenue for 1926 was $736.49 against $1,385.17 for 1927.

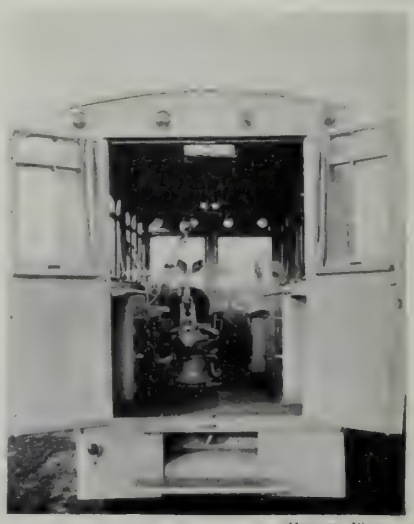
New Bus Service Authorized

A permit has been granted the Texas Bus Lines, Inc., by the Texas railroad commission to operate bus service between Houston and Galveston. Four round trips will be made daily. This company now operates buses from the Houston-Galveston interurban to Texas City.

The West Texas Coaches, Inc., has announced the purchase of the Houston-Huntsville-Dallas bus line. This property was purchased from C. T. English, L. Kennedy, and J. F. Hyde. The transfer was authorized by the Texas Railroad commission.

The Texas railroad commission recently denied the application of a bus line to establish service between Los Angeles and Dallas, the denial covering the route through Texas and based upon the belief of the commission that the bus line's standard of facilities and operation was not in accordance with the standard required by the new Texas law.

Soft jobs come to those who have done hard jobs well, and easy money is postponed payment that comes to the man who has earned hard money.—William Feather.



Herbert Photo.

A Mobile Dental Clinic in Australia That Travels Thousands of Miles Through Queensland.

What Do You Know About Tires?

From Rope to Rubber

By Harley Densmore

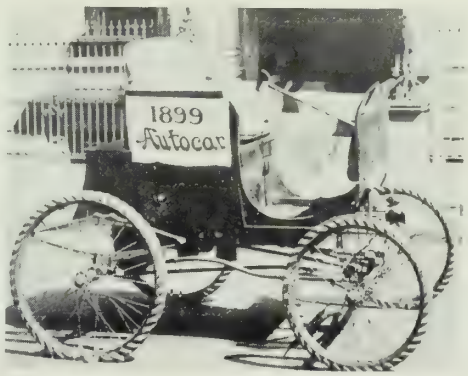
IF MEN had the time, the disposition and the intelligence to go into the factories and see motor cars and trucks and tires in the process of making, from the raw material to the finished product, it would be the most valuable education possible to obtain. The suggestion is just as applicable, of course, to food and clothing, the source of which is a deep mystery to all human beings not personally concerned in the making of such things.

Someone with a penchant for making nasty cracks at women once said they chose their motor cars, when the choice was their's, with regard only for the color and upholstery. What was under the hood they didn't care, just so long as it worked. There may be something in this theory, but in another way the men are little better, most of them knowing as much about their cars as they know about their insurance policies, and this is nothing to crow over. Obviously, the making of motor cars and tires is a complex science a bit too thick for the average intellect, but immensely important if only men could be made to realize it. Science, said Oliver Wendell Holmes, is the topography of ignorance.

If, perchance, you are old enough to remember the first motor cars you are certain to have memories of the tires they bore. Those were the days when men were studying big problems for the comfort of the race. Do you remember the rope tires? Wonderful contraptions they were. They did lessen the shock, it is true, but what a jump it is from those times and contrivances to the scientific processes of the present!

You can gain an idea of the importance of knowing something about the goods you buy when you visit a factory, a knowledge you can get in no other way. For one thing, you will have forever after a new respect for manufacturing. You will have an intelligent idea of why you pay this or that price for the worthwhile product, and no salesman's smooth voice can change your mind.

A factory is a school. Colleges plead with legislatures and philanthropists for money to install laboratories to teach the very things you can learn by visiting these big plants where experiments mean millions in money before the item is turned out perfect for your home or your car. The time you spend idly in a picture house getting a headache and a grouch might better be spent in a factory learning something.



The Puncture-proof Tires of 1899.

One of these great industrial schools is that of the Pacific Goodrich Rubber Co., the Los Angeles branch of the great corporation bearing that name, minus the first word. Without a visit, however, you get some conception of its magnitude when you learn that its floor space covers eight acres, and that the factory land takes in 46 acres. This factory, recently opened, is a marvel of scientific efficiency, but all the imposing figures and facts concerning the material that went into its construction are dull in comparison with the intricate methods and machinery and science applied to the making of the tires you use.

A long series of operations requiring the most exact timing, precision, and quantity measurements, and a great deal of intricate and sometimes almost human machinery are involved in the building of a tire. In a huge grinder, technically known as a Banbury Mixer, the crude rubber, sulphur, zinc oxide and other ingredients that make up a piece of high quality material, are mixed and ground together under heat and pressure. Passing into the mills, it is still more thoroughly mixed and rolled into wide sheets.

Meanwhile in the creel room, thousands of spindles have been feeding literally miles of high grade cotton cord through a device that brings some 1700 cords together, and forms them into a sheet about 60 inches wide. The process used in Silvertown Cord construction is known as the Weftless Process. It differs from the ordinary cord fabric in that there are no cross threads or filler threads used to hold the lengthwise cords together. This sheet of weftless cord is passed over hot rolls which drive out the moisture and heat the cords.

The sheet of cord and the sheet of rubber are brought together in a machine known as a calender where, through a combination of

Tire-Building Room in the New Plant of the Pacific Goodrich Rubber Co., At Los Angeles.

heat and intense pressure, each cord is thoroughly impregnated and the entire sheet is coated with rubber on both sides. This coating process is so thoroughly done that the necessity for any cross threads is eliminated.

Passing out of the calender, the material is carried to the bias cutter where the wide sheet is cut on the proper angle into widths suitable for forming into a tire.

The next step carries it to the one-man tire building machine where an operator forms the plies of fabric together into a finished carcass, attaches the bead and applies the tread; the casing is then ready for the vulcanizer, or curing.

In building Silvertowns, the water cure process is used, one of the most important developments of recent years in tire construction. The curing press is a large vertical cylinder with a hydraulic ram operating from the bottom. When the casing is ready for the cure, a water bag, or thick rubber tube, is first inserted in the tire; the casing is put into a mold, and the number of molds that the curing press will accommodate are lowered into it, one on top of the other. When the vertical press is full of molds it is closed, and superheated steam is introduced into the water bag inside each tire at a definite pressure. After the heat has penetrated through the water bag into the tire from the inside, steam is let into the main body of the press and the molds are brought up to the curing temperature. As the cure proceeds, the rubber flows into its proper position under heat and pressure. The tread stock conforms to the tread designs which are cut into both halves of the mold. At the end of the cure, which is automatically controlled, the molds are removed from the press and the casings taken out and transformed into a scientifically designed tire.

The machine it encounters next, which removes the water bag from the inside of the finished tire, is almost human in its action. A rigid inspection follows and the tire is ready for its final stage, the device which winds a paper wrapper around it and insures its coming to the user in the same shining, glossy-black, clean condition in which it left the rubber factory.

Teaching his class in chemistry, one day, the professor said, "I shall use only three facts in this lecture today. If you can get those three facts into your head you'll have the whole thing in a nutshell."

And there, in a few paragraphs, you have the story of tires and how they are made, in a nut-shell. The next time you have a blow-out or a puncture don't blame the tire. Blame your own carelessness in running over a lot of broken glass or bent nails, or blame the fact that tires, like teeth, won't last forever. And, like teeth, they do require care. You can't bite nails and glass and sharp-cornered stones without hurting them. Of course, some tires never will wear out, but with the advertising department looking at us we can't name them.

Arrested in the Air

The first air arrest in Tulare County, Cal., occurred one day last month when Harry Pahl, aviator, was stopped by a siren sounded by H. J. Kelsey, aeronautical deputy under Sheriff Hill while flying over the city, and charged with breaking the county aviation ordinance and flying less than 1000 feet above the city. Immediately upon landing, P. S. Graham, president of the Tulare Chamber of Commerce, Pahl's passenger, was arrested and charged with violation of the city ordinance in the distribution of handbills.

And Still the Taxes Climb

$230 a Mile in 1900, Now $1603

By J. B. Shores

Gen. Agt. Texas & Pacific, Atlanta, Ga.

There went out a decree in the days of Claudius Caesar that all the world should be taxed—*Scriptures.*

THIS thing we have come to call a tax is essential to government. It is part of the price we pay for the pleasures and comforts derived from social organization. Its necessity, however, does not preclude the wisdom of watching it carefully else its growth might tip the scales against the benefits its operation gives the public.

In various amounts, and for a multitude of purposes, taxes have spread until they tap the income of every individual and corporation. They accompany us from the cradle to the grave. No one escapes, although occasionally we fail to notice its effect. But the tax is there nevertheless, either above or below the surface, for it is always included in the price we pay, whether the purchase be necessity or luxury.

Since the beginning of rail transportation, a tax has been placed upon the railroads. That is as it should be. For a time this tax kept somewhat abreast the progress of the railroads. Then, suddenly, it began to forge ahead, traveling at a rather headlong pace, leaving progress behind. Its steady upward course, seldom checked by a change of speed, has carried it almost to the 400 million dollar mark for Class I railroads.

It is a far cry to the year of 1890 when the tax bill of the railroads was but a little over 13 million dollars. The thing has grown from a small change proposition to one of big money, so that to settle their yearly tax bills the railroads have had to dig deeper and deeper into their respective pockets.

An element of surprise may be found in the fact that the combined crop values of 13 selected states last year was actually less, by several million dollars, than the railroads' tax bills for that period.

Or, if we were to use certain crops to meet the tax bills for 1927, it would require the full value of the tobacco, sweet potato, peanut and rice crops.

Such statements frequently appear questionable because we are not accustomed to thinking of taxes in relation to crop values.

We have said that the railroads' taxes have shot upward at a rather headlong pace. A few comparisons will not only clarify but substantiate the statement.

In 1900, when our national transportation system consisted of 192,556 miles of railway, the tax was $230 a mile; in 1927 it was $1603 a mile for Class I railroads, an increase of $1373.

Interesting discoveries are made by approaching the problem from the angle of a daily basis. To return again to 1900, we find that the tax amounted to $121,767 a day that year; by 1911 it had risen to $270,111, while 1927 saw it rise to $1,042,810, an increase of $921,043 a day, or 756 per cent.

The yearly average increase of the railroad tax since 1900, computed on a daily basis, has been 29.5 per cent, a fact that will lend supporting weight to the statement that the upward swing of the tax has been both rapid and steady.

Turning to the revenue derived from freight traffic, we find the increase for 1927 over 1900 was 345 per cent, while passenger revenue has not done quite so well, amounting to only 101 per cent. If we compare these increases with that of taxes, 756 per cent for the period, it reveals a wide discrepancy.

The tax bill for 1927, prorated among the total number of carloads handled, averages $7.45 a car. Or, should it be distributed among the passengers handled, the amount from every passenger would be about 40 cents. As the average fare from passengers last year was only about $1.20 a head the tax would cut quite a sizeable slice out of the passenger revenue.

The course of dividends and taxes has by no means followed the same channel. Since 1910 their paths have led in different directions, dividends following an irregular, downward route while taxes have held to the steady upward climb.

In 1910, taxes amounted to $98,035,000; dividends, $405,771,000. Seventeen years later a striking change has come about; taxes for Class I railroads have risen to $380,638,262, while dividends have declined to $349,500,000, the former having advanced 288 per cent since 1910, the latter declining 10 per cent.

While we are dealing in such gigantic figures, it is interesting to make the observation that tax payments made by the railroads during the past ten years aggregate three-odd billion dollars. This stupendous sum is nearly three times as great as the value of our cotton crop last year.

In analysing the railroad tax payments it is found that, in recent years, the three principal sections of the country, eastern, western and southern, show variations in the percentage of increase.

The upward trend during this four-year period is apparent. It is more pronounced in the southern district, however, due to the outstanding industrial advancement since the World War. This development, of course, has carried with it increased property values.

Note the following:

	Tax Payments 1923	Tax Payments 1927	Increase
Western district	$141,713,000	$156,583,361	10%
Eastern district	135,257,000	154,927,008	14%
Southern district	54,946,000	72,434,417	32%

The cycle of the railroad tax dollar often is lost sight of by the average person. This is due to the course it takes after leaving the transportation purchaser.

The tax dollar reaches the railroad in the form of freight and passenger revenues. However, the shipper or passenger, in paying the freight bill or purchasing the ticket does not see the tax item in his transportation purchase. To him it is a charge for transporting him or his goods between two given points; and the matter ends there.

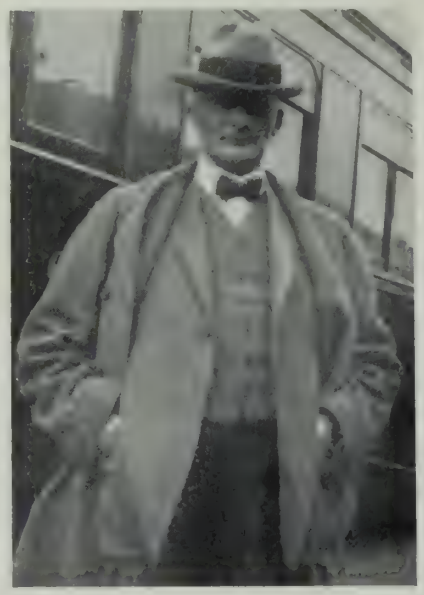
But here is what takes place: The tax which comes to the railroads in the form of passenger and freight receipts is set aside promptly in a fund known as "tax accruals." From this fund disbursements are made to the federal, state and municipal governments. By them it is expended for highways, education and other various functions performed by these bodies.

The railroad tax thus returns to the public. But, having left in the form of passenger and freight charges and returning in a camouflaged and shrunken shape through the avenue of public benefits, its course from point of departure to point of return becomes confusing and befogged.

For the first time in nearly 40 years the annual tax bill of the railroads declined in 1927 slightly below that of the preceding year. Such a long uninterrupted upward swing is indeed astonishing.

Whether the peak has been reached remains to be seen. The upward march of the tax cannot continue indefinitely, however. The annual pace of 29.5 per cent is both rapid and burdensome and, if continued, would soon become confiscatory. Such a handicap would, of course, be reflected in inadequate service.

The problem of railroad taxes is of vital importance both to stockholder and public alike; it is one that merits careful study and prudent application to forestall a tipping of the scales against our business and social welfare.



H. H. Eager

Railways and Golf

The railway, I believe, is my principal hobby, although of late I have been trying golf to a certain extent.

So many great advances have been made in railroading since the A. R. A. convention in 1926 that I must confine myself strictly to my own department in giving an opinion as to developments. The greatly increased efficiency of the locomotive as a whole, brought about through the various auxiliaries adopted and improved upon, has done more toward economizing in operating costs of a railroad than almost any other item. When we consider the reduction in fuel costs through the use of the feedwater heater, thermic syphon, etc.; the reduction of maintenance costs by the adoption of the sludge remover, force feed lubrication, etc., and the generally increased efficiency of the locomotive through the extension of the use of automatic stokers, cut-off control devices, and various other smaller items, the extent of our progress is inestimable.

The same thing can be said of car equipment — numerous improvements have been effected in the past few years which have added vastly to the efficiency of car equipment, resulting in greatly decreased maintenance costs.

Generally speaking, I am satisfied that nothing is being left undone toward making railroad rolling stock as perfect as it can possibly be made, and I am firmly convinced that the immediate past has done more in this direction than is generally realized.

H. H. Eager,
Supt. M. P. & E., Can. Natl. Rys.
Winnipeg.

Constant Improvement

The figures speak volumes for American efficiency . . . . Constant improvement in roadbeds and train equipment would seem to indicate that within a reasonable time a death in a train accident will be rare, while train collisions will be entirely unheard of.—St. Louis Star.

Anthony Fokker, head of the airplane manufacturing company making the planes that bear his name, has promised a factory for Los Angeles in the near future. The proposed plant will cost $500,000 and have a capacity of 500 planes a year.

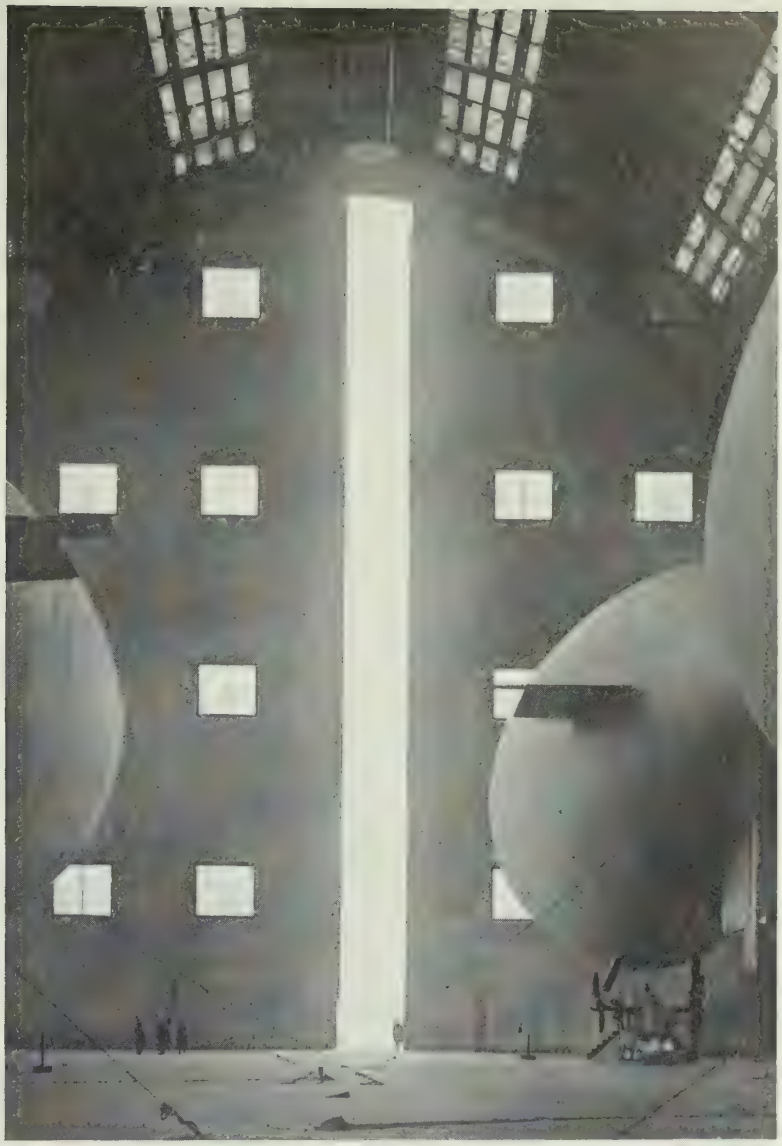
"Even experience isn't much of a teacher to him who is too stubborn to learn."

Railroads Had No Such Reception

Aviation Just Now Is Lucky

By T. C. Powell

Pres. Chicago & Eastern Illinois



P & A. Photo

No One Slams These Doors. They Are on the Hangar at Scott Field, Ill., Are As High As a Ten-Story Building, and Weigh 763 Tons Apiece. Weight Is Necessary Because of Tremendous Wind Pressure.

HOW different the reception of the airplane has been to the reception of the first railways in England! Speaking before the house of commons in opposition to the granting of a charter to the Liverpool & Manchester Railway, a little over a hundred years ago, one of the speakers said, in part:

> Was the house aware of the smoke and the noise, the hiss and whirl which locomotive engines passing at the rate of ten or twelve miles an hour would occasion? * * * Neither the cattle plowing in the fields nor grazing in the meadows would view them without dismay.

Even the electric telegraph was opposed in this country, and I recall reading that one of the vigorous opponents, after being convinced against his will, went down to defeat only after the following declaration:

> I always have said and I always will say that even if you can send a message by telegraph, you never will be able to send a bale of cotton.

I shall not undertake to follow through the development of the airplane, but the most recent expression of a public body indicating the position which aviation now holds, is the finding of the Interstate Commerce Commission on the subject of motor truck and motor bus regulation:

> As far as practicable, there should be a definite coordination of all existing transportation agencies — land, water and air.

Frankly, I don't know exactly what this will mean if it is carried out by direction of congress, but I am wondering whether the aviators and the airplane companies appreciate their present freedom. Speaking from the standpoint of a railroad official, I should say they must be in a state of perfect bliss in that they have:

No rate regulations.
No taxes on the air through which they move.
No automatic train control.
No right-of-way fires.
No costly grade separations.
No charity appeals.
No free passes.

Part of an address by T. C. Powell, president, Chicago & Eastern Illinois Railway, before the Western Railway Club, Chicago.

No war department regulations to require that they shall maintain a certain height across navigable streams.
No valuation expenses.
No cross tie difficulties.
No broken rails.
No rough handling which cannot be blamed on the wind.
No responsibility for the farmers' troubles.
No argument with the coal operators.

On the other hand, they are encouraged to operate at the greatest speed possible; airports are provided free for their terminal facilities; signals protecting the airways are paid for by the government. In advertising, they get more free space in the newspapers than is given to anything else, except baseball, and usually on the front page.

I do not regard the airplane as a substitute for any method of transportation except the private automobile. The airplane is, in and of itself a fresh conception and a new means of transportation. It can be allied with the railroad train and with the commercial automobile, with the ocean steamer and with the warships and even with the submarine, but, in my opinion, it is not a substitute for any of these.

I believe the present world record for the airplane is just over 318½ miles an hour, or over five miles a minute, and new uses will be found for this extraordinary speed. These uses and the capacity of the plane itself will go hand in hand. They never will be widely separated. As new uses are found airplanes will be further developed, and as rapidly as a new capacity is created a new use will be found for that capacity.

It is an axiom in railroad transportation that facilities create traffic, and unless we conceive of aviation as a new feature of our life and without any close connection with other present methods of transportation, the development of aviation will be hampered. This will not always be through definite opposition but will be, if anything, the result of trying to connect a new matter with an old one.

Now it is perfectly true that it is possible to set up competition between the airplane and the railroads; between the airplanes and the automobile; and between the airplanes and vessels.

For instance, the Southern Railway of England and the Nord Railway of France have completed plans for a service of five and one-half hours between London and Paris, reducing the present schedules by an hour and a half, and with the expectation that this new schedule will approximate the time it now takes for the trip by air if the automobile service at either end of the air route is also taken into account.

The fares by railroad and boat are practically the same as by automobile and airplane, but the distance, after all, is short, and I do not believe that in this country similar conditions can be found.

I do believe, however, that the airplane will be a strong competitor of the private automobile, and to a substantial extent the airplane will continue to be substituted for the private automobile.

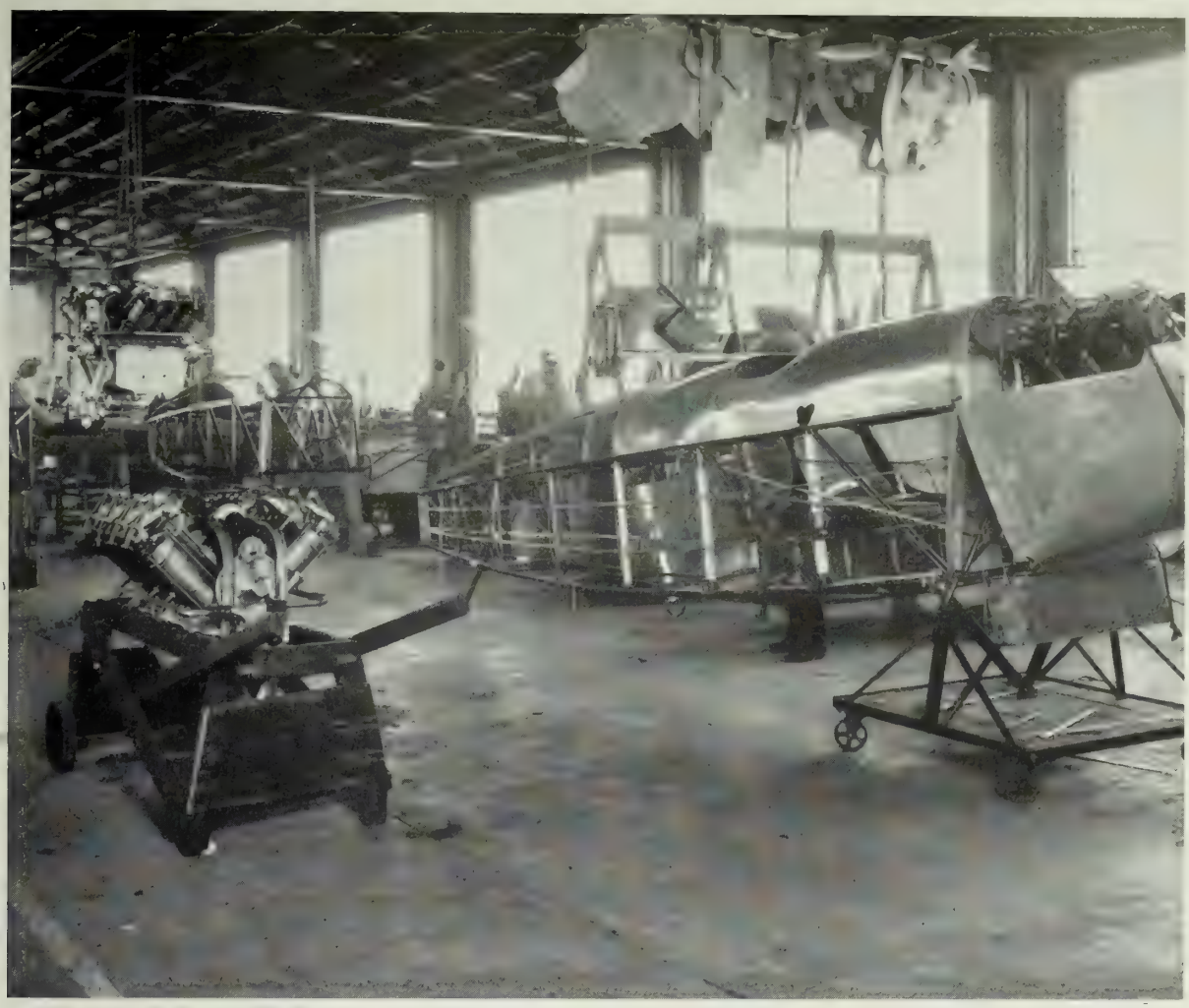
I thought it was rather significant that following a magazine article on aviation, the remainder of the column was filled out as follows:

It is easy to fool yourself. It is more difficult to fool the people you work for. It is still more difficult to fool the people you work with, and it is almost impossible to fool the people who work under your direction. (Henry B. Thayer)

In considering this development, I am trying not to fool myself, and I hope that no one else will be fooled by what I have to say.

It is a favorite occupation of some editors to dig up old predictions about railroads and steamships and show how short sighted and ridiculous the predictions

When Houston, Texas, Wanted a Municipal Airport the People Voted $400,000 for That Purpose, and the City Bought the Land. More Than A Hundred Planes, and Several Automobiles Were There for the Dedication. Also 12,000 Spectators.



Putting An Airplane Together in the Erecting Shop of the Travel Air Company's Big Plant at Wichita, Kansas.

were. Nevertheless, some predictions are being made with respect to air transportation. I shall quote only those of reliable persons:

H. D. Fokker, the Dutch airplane manufacturer, predicts that within two years one out of every 1000 Americans will use an airplane, and that at the end of two years the manufacture of airplanes will amount yearly to 120,000, and that the average price of light planes will be $1200 or less.

Captain Rickenbacker says that by 1950 the manufacture and operation of aircrafts will be the world's greatest industry, and that there will be 50 million automobiles in use in this country within the next 20 years.

Some doubt has been expressed as to whether the population of the United States ever will be more than 200 million, but even at the present rate of increase we probably shall have, in 1950, a population of about 150 million people—men, women and children. The 50 million automobiles will readily accommodate the entire population at the rate of three persons to the automobile, but this will leave none to act as traffic policemen or as attendants in the soft drink parlors and hot dog stands. Neither will the allotment of the entire population to the automobiles leave any one to use the two or three million airplanes predicted by Mr. Fokker, some of which may be able to carry as many as 100 persons.

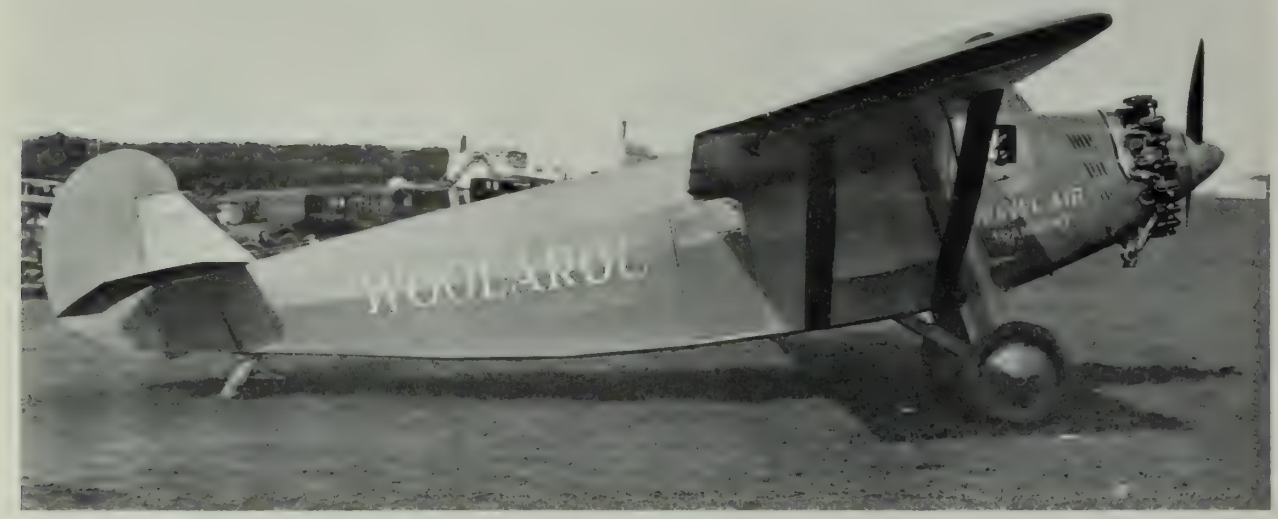
Now, consider what it will be necessary to do to provide facilities for handling this vast navy of airplanes and the millions of automobiles.

The automobilists already complain there is not enough room now, and, of course, twice as many automobiles will require nearly twice as much space on the highways.

In New York, there will be spent nearly $600,000 for a municipal airport in Brooklyn. Another airport elsewhere will cost $650,000.

The mere preparation of the land and the installation of the necessary facilities, without taking into account the value of the real estate, costs anywhere from $250,000 to $700,000.

Like other terminals, the airport to be effective must be close to the business center of the city. The cost of such area, when donated by the municipality, is rarely referred to. Sometimes the property so assigned was intended for parks and recreational purposes and not for commercial enterprises. The field comprising the Chicago Municipal Airport is said to have a value of ten million dollars, ac-



This, As You Can Plainly See, Is the Woolaroc, Flown by Art Goebel, Winner of the Famous Dole Flight From San Francisco to the Hawaiian Islands. This Is A Travel Air Transport.

cording to the Chicago Association of Commerce.

Who is to provide these ports? Are the cities to do it at the cost of the taxpayers, and are they to provide the facilities free of charge to the users, and if so, why? Is the national government to continue to provide free airways at the public expense, and if so, why?

Please bear in mind that in the report of the department of commerce, the following statement is made:

> In the eleven years of American air mail, 1918 to 1928, congress has appropriated $17,685,000 for government routes, and $4,500,000 for contract routes. In addition, monies have been expended out of the allotments for foreign mail service (Alaska, New Orleans and Seattle routes).

My understanding is that the national government does not maintain airports, but has turned over to different municipalities the airports heretofore constructed at the expense of the postoffice department. The fact that these airports and airways are being provided by municipalities or by government indicates the vast difference in the sentiment surrounding the development of aviation and the legislation which restricted the development of the railways in the United States.

We like to think now that America is foremost in large transportation developments, and perhaps the prejudice against the new "contraption" was formerly no stronger here than in other countries, but the well known present attitude toward aviation can be better appreciated by reciting a few occurrences of the last century.

When the Little Miami Railway was built to Cincinnati, it was forbidden to bring its locomotives into the city, and was forced to disconnect the cars from the engines and move the cars into the city by horsepower.

When the Chicago & North Western was surveyed, it was forbidden to bring its rails into the city limits of Chicago at all.

When the Eads Bridge was constructed across the Mississippi River, thereby connecting St. Louis with East St. Louis, the railroads were not able to use the bridge, because the east side lines were, by law, limited to operation in Illinois, while the west side lines were likewise restricted to Missouri, and the bridge company immediately went into receivership.

When the Erie Railroad was chartered, it was required to locate both termini within the state of New York, and was forbidden any association with a railroad in New Jersey.

While the airplane may be a substitute for the private automobile, it cannot, in my opinion, be a substitute for the railroad trains or for the steamships. It is and always will be a separate kind of transportation, suitable to peculiar needs and peculiar conditions, and will fill a gap in the transportation system of the world that nothing else can do at this time.

Airway Facilities Increasing

In a survey of the airway facilities in the United States, the department of commerce finds there are 864 airports and intermediate landing fields, according to W. P. MacCracken, Jr., assistant secretary for aeronautics.

The present 864 fields include 207 municipal, 163 commercial and private airports, 124 department of commerce intermediate fields, 287 miscellaneous intermediate fields and 81 army, navy, and national guard fields, 1 treasury, and 1 agriculture field. By the end of the 1928 fiscal year the department of commerce estimates that lighted and marked intermediate fields will total approximately 262 compared with 124 at present. In addition, 93 municipal fields are proposed. Besides these, the department of commerce has on record about 3,000 unimproved

fields, such as pastures or similar areas throughout the country on which landings and take-offs have been or can be made.

Every chamber of commerce or similar body in the United States has been asked by the state governors to urge air marking in response to the appeal of Secretary Hoover for such cooperation. Hundreds of towns and cities have already been air marked, of course, by civic or commercial enterprise but this renewed effort for a concerted national program of standard marking is expected to increase the number rapidly. A register is kept in aeronautics branch of all cities airmarked and their names are published in Domestic Air News and in Airway Bulletins. Printed specifications and illustrated suggestions are being mailed to all business organizations or others interested.

Building An Airplane in the Shops of the Travel Air Company At Wichita. Welding the Framework Together.

New Air Company in Texas

The Houston Airplane Co., a holding company, and the Southwest Air Services, Inc., an operating company, have been formed. Officers of the Houston Co. are Mike Hogg, president; R. D. Randolph, vice president, and W. T. Carter, Jr., secretary and treasurer.

Officers of the company are W. B. Pyron, president; L. C. Doney, vice president, and Haywood Nelms, secretary and treasurer. The company is to operate planes for commercial service to all points of the United States and Mexico.

Air Activity in Britain

The Guggenheim aeronautics promotion fund supplies some arresting figures as to the systematic and liberal extent to which the British are promoting aviation. As John Bull built up his mighty mercantile marine by government subsidy, so is he now developing his air fleet. The total subsidy of regular British commercial airplane passenger and freight lines and "light airplane clubs" amounts roundly, inclusive of March, 1928, to $7,000,000, covering a seven-year period. Other British government aids to civil aeronautics, between 1921 and 1928, are estimated at $10,250,000. Thus, during the last seven years, the British government has subsidized civilian aviation at the rate of approximately $2,500,000 a year. These figures do not include appropriations for the British naval and military air forces. The Guggenheim fund notes that "the aviation subsidy is the common practice of all European governments." Germany in 1927 voted $6,500,000 in such subsidies, and France, $3,170,000.

In eight years ending with 1926, Imperial Airways, Ltd., carried between Great Britain and the Continent 85,906 passengers and 2500 tons of cargo. Competing with French, Dutch, Belgian and other companies, they transported in 1926 about 61 per cent of the cross-channel air passenger traffic.

From Dirigible to Train

A "hand-to-hand" transfer of a sack of mail from an army dirigible to an Illinois Central train, while both were traveling thirty miles an hour, was made near Bellville, Ill., June 11. Col. John A. Paegelow, commandant of Scott Field, said the transfer was the first of the kind ever made.

The dirigible, a "C" type, 210 feet long, carried a crew of six men in command of Lieut. Karl S. Axtater and Lieut. Edward H. White.

Credit of about $4,800,000 for a commercial airplane line between France and South America has been voted by the finance committee of the French chamber of deputies.

Among the Men Who Do the Work

A Conductor Turns to Opera

By Helen Gaisford

JOHN Simcoe Smith, street car conductor, is soon to be John Simcoe, grand opera baritone. For he has been awarded contracts to sing in this season's productions by both the Los Angeles and the San Francisco Grand Opera Associations.

Perhaps his red hair and cheerful smile have had something to do with it. More likely it was hard, untiring work and an ambitious determination. Undoubtedly a great deal is due to the inspiration of his wife and their 18-months old daughter, Martha.

Smith comes from a musical family, and is the youngest of a large group of brothers and sisters, all adept musicians. Smith was born in England, but is now a nationalized American. And he is only 29, with his best years before him.

The present contracts have been the result of long, hard work. When Smith's mother died several years ago, she willed him sufficient money to take him to Italy to continue his studies, but difficulties in settling the estate left him only $35. He forgot music, as much as a musician ever can, and went to work. For a time he was with the Los Angeles Railway Co. Now he is a conductor on the Third street car of the Pacific Electric at Long Beach, Cal. He has been spending 13 hours a day on the job, leaving home at 5:30 and returning at eight. At present he goes to Los Angeles three nights a week for rehearsals, preparing for the opening of the opera season October 6. Among the operas for which he is rehearsing are Turandot, Tosca, La Cena Delle Beffe, Faust, Pagliacci, Cavalleria Rusticana, and as the commissioner in Mme. Butterfly, in which Marie Jeritza will sing the leading role. Smith's voice covers a range of two octaves and six tones, and is a high baritone.

P & A Photo.

Albert Rhyner, Conductor, Chicago to Milwaukee Electric Ry. Marries Millions.

As workers on the Pacific Electric are expected to devote their best energies to their jobs, Smith, or Simcoe as he will now be called, has kept his ambition secret as much as possible. Now, however, he is being encouraged by that company. Arrangements are being made for him to sing over KFI on the new Pacific Electric radio programs, and efforts have been made to secure for him other paying engagements. At a number of his recent appearances, the company has been generous in allowing him time off.

Well, Maybe He Will

Albert Rhyner, a conductor on the Chicago-Milwaukee Electric Railway, married a few million dollars, June 8, when Miss Marian Connor, daughter of W. D. Connor, wealthy Wisconsin lumberman, became his bride. They were married in the Connor family home at Marshfield, Wis. The newspaper account of the ceremony says the happy pair were childhood sweethearts. Despite the fact that his wife will inherit several million dollars some day, and doubtless is not short of change right now, Rhyner has announced his intention of returning to work on his run immediately after the honeymoon. Rhyner is 35 and his bride 33.

A Concrete Example

"Here!" shouted the railway official. "What do you mean by throwing those trunks about like that?"

The porter gasped in astonishment, and several passengers pinched themselves to make sure that it was real. Then the official again spoke to the porter:

"Don't you see that you're making big dents in the concrete platform?"

Your Temper and Your Job

My observation has been that excitability often springs from incompetency. The man who is master of his job usually can keep calm. He knows how to meet each situation that arises and does so capably, without fussing or fuming.

An employe who constantly loses his head, often is afraid of losing his job. The slightest emergency imposes a strain he cannot calmly withstand.

To get a better grip on your temper, get a better grip on your job.—B. C. Forbes.

A fish will never get caught so long as he keeps his mouth shut.

Little Stories About Big Men

Many Persons Wouldn't Know a Car Retarder if They Met One. The International Newsreel Discovered This One in the Boston & Maine Yards at Boston, and There Stood the Co-Inventor of the Thing, Pointing Right At It—President Hannauer.

MEN have all kinds of hobbies. Some find their only joy in fishing or golf. Some collect rare books with a special predelection for beautiful bindings or old prints. One finds his restful hours in making furniture, studying paints and stains, caring for his flowers or fruits, fast horses or purebred cattle. Anything that isn't absolutely necessary to the business of making a living, and whenever it gets near that point it ceases to be a hobby and becomes work.

You never know a man intimately until you know his hobby. No experienced newspaper reporter would think of trying to interview an important personage until he had looked in the "morgue" to see whether the man had any secret habits. Occasionally, it is true, some especial feature or department of a man's business becomes his personal fad, but down deep under the skin, near the man's heart, if it is operating properly, the thing isn't a real hobby; it is merely a pride in accomplishment. An out-and-out hobby gives you the low down on a man as no detective could do it, if you are fortunate enough to discover it.

Some times you associate with a business executive for years, meet him daily at luncheon, play golf with him, or what you both call golf. You may even sleep with him and admire his snoring. But you don't actually know the man until you have unearthed the shameful fact that ever since his youth he has found his chief relaxation in writing poetry. Then, if you control your features and your language and quote a few lines of something appropriate you are well on the way to gaining the man's favor. He will tell you all kinds of things. Indeed, men have been known, while still under the spell of such blandishment, to lend money without mentioning a return date. Sometimes these hobbies of men are very beautiful. Sometimes they spring from tender impulses long unsuspected, coming to life under strange auspices only to make men say, "Wasn't that just like him?"

A great executive in New York, a bachelor quite widely believed to have no liking for family ties of any kind, fell ill one night in his apartment while entertaining friends. When one of them opened the bottom drawer of his chiffonier to get a fresh suit of pajamas he discovered it filled with children's toys! Later it was shown that this crusty old chap had been taking care of several orphans for years, and indeed was never without eight or ten on his pay roll. He was dreadfully embarrassed.

Down south in Atlanta they have a railroad president whom no one can get to talk if the matter concerns himself. He isn't what we call hard-boiled. He is a hard worker, however. One of the hardest. Some trainman said not long ago that whenever he picked up the business car of Charles A. Wickersham, about four o'clock in the morning, he

was always annoyed by the odor of boiling coffee, sizzling bacon and crackling eggs, for the president and general manager of the Atlanta & West Point, the Western Railway of Alabama, and the Georgia Railroad, has breakfast on the line between four and five o'clock, begins work shortly thereafter, and keeps at it until the cows come home.

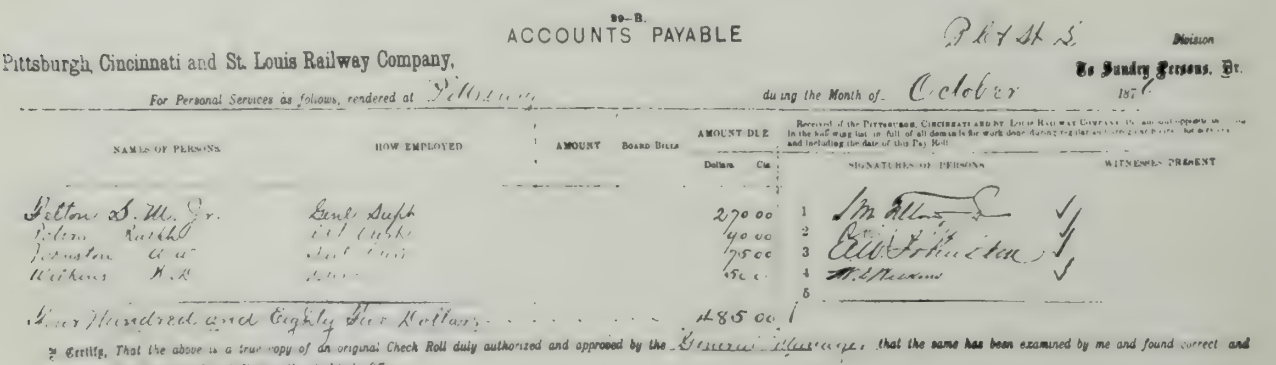
Now, this isn't the sort of man any experienced railroader would suspect of having a full-grown hobby, unless it is hard work. But Mr. Wickersham has one, and a very wonderful and elevating hobby at that. Music and children! The development of any ability discovered or believed to being lying around dormant and uncultivated in the children of the road's employes. So strong is Mr. Wickersham's interest in music and what it means in the lives of children and others that he has done some very constructive things. For one part of his plan, he has offered free training to all children having some artistic talent or a leaning toward one, and in order to give them a chance he had a stage built in the general office building at Atlanta not long ago, and there a recital was put on in which 26 children made good in one thing or another much to Mr. Wickersham's apparent joy.

If you chance to be a northern man you may not know much about the lines managed by Charles Wickersham, which is your misfortune, because while they are not quite so long as some that are longer they are right in the front rank as progressive, excellently managed properties on whose trains you will find comforts and conveniences not encountered on many more important railroads in other parts of this favored land. The Atlanta & West Point which, the Pocket List says, is only 227 miles long, was the first road to install radio receiving apparatus on passenger trains for the entertainment of patrons. A private broadcasting station was established at College Park, Georgia, an Atlanta suburb, to provide the programs for the New York-New Orleans Limited between Montgomery, Alabama and Atlanta, and this was discontinued only when other broadcasting stations were opened in Atlanta.

It isn't very important to know where a man was born or when. The record shows, however, that Charles Wickersham appeared first in person at Unionville, Chester County, Pa. The next sentence really isn't at all necessary because it is written into the histories of so many successful men. But this fact, like the birthplace, belongs in the man's record, so in it goes. Mr. Wickersham started as a telegraph operator at 16 years, for the Pennsylvania. However, and also be that as it may, his strong and determined personality was developed in the Far West where he helped the Burlington in its struggles toward prosperity, mainly in Nebraska. Having become an experienced railroad man he went south and entered the service of the Southern Railway at Columbus, Miss. It was his fine work as director of transportation in the great Atlanta Cotton Exposition in 1895 that directed attention to him particularly, and sent him up the ladder toward his present place. Mr. Wickersham took charge of two of his railroads in 1900, and in 1913 assumed the management of the Georgia Railroad.

The people seem to think pretty highly of this gentleman down south. They had a perfectly wonderful blow-out on the twenty-fifth anniversary of his service on the lines too numerous to set down here so often, gave him a silver loving cup and other things, and had speeches that set half the crowd sniffling and reaching for nose-wipes.

But why not? Charles Wickersham is a big figure in the life of Atlanta, director of the Fourth National Bank, the Coca-Cola Company, the Atlantic Ice and Coal Company, the Atlantic Steel Company and goodness knows what else. Atlanta may be a big city in the opinion of any man, unless he hails from Birmingham, but it is Charles Wickersham's home town where everyone knows him and speaks to him as he passes by.


29—B.
ACCOUNTS PAYABLE
Pittsburgh, Cincinnati and St. Louis Railway Company,
Division
To Sundry Persons, Dr.
For Personal Services as follows, rendered at Pittsburgh during the Month of October 1876
Received of the Pittsburgh, Cincinnati and St. Louis Railway Company the amount opposite my name in the full amount in full of all demands for work done during the month and including the date of this Pay Roll
NAMES OF PERSONS | HOW EMPLOYED | AMOUNT | Board Bills | AMOUNT DUE Dollars Cts. | SIGNATURES OF PERSONS | WITNESSES PRESENT
Felton S. M. Jr. | Genl Supt | 270 00 | 1 | S M Felton Jr. | ✓
Felton Rachel | Genl Supt | 40 00 | 2 | Rachel Felton | ✓
Johnston W. W. | Asst Supt | 75 00 | 3 | Wm W Johnston | ✓
Williams H. R. | Asst | 75 00 | 4 | H R Williams | ✓
5
Four Hundred and Eighty Five Dollars 485 00
I Certify, That the above is a true copy of an original Check Roll duly authorized and approved by the General Manager, that the same has been examined by me and found correct and has been duly registered and filed in the Auditor's Office
Approved for Payment
H. B. Rowe Auditor.
Comptroller.

A Little More Than 50 Years Ago, As This Bit of An Old Pay Roll Shows, S. M. Felton, Now Chairman of the Board of the Chicago Great Western Ry., Was Getting $270 a Month As General Superintendent of the P. C. & St. L. Ry. A Man Could Have A Fine Time on $270 in 1876.

And that's a great thing, a great position to have anywhere in the world.

The Water Boy

Some of the old bromides of literature are singularly useful when you write about a successful man. The platitudinous observation declaring it impossible to keep a good man down, as if anyone wished to do it, and the philosophic reflection of Carlyle to the effect that the present is the sum-total of the whole past, lose not a bit of their usefulness because they are found only in Forty Thousand Quotations. History and the biographies show rather convincingly that big men very often come out of the most discouraging environments. Sometimes it seems as if the schoolhouse will have to be burned to get a boy out of the grades. His respectable and God-fearing parents weep over frustrated efforts to make him wash his ears and neck, and he won't change his shirt until the one he wears is taken from him by force. But one day he begins to display human intelligence, and finally, much to the astonishment of everyone at home he becomes famous for something or other, and all the relatives, and a host of persons he never heard of in his life, begin to flock around the postoffice and tell how they knew him when——.

No record is at hand to show that any of these trite meanderings disclosing the peculiarities of boyhood have any direct application to Lynn Challoner of Bismark, N. D. For all we know to the contrary Lynn may have been a model and the teacher's pet, but we should hate to believe it; he has been so successful; no model boy in our experience ever amounted to a whoop. The things we have said in the first paragraph were set down for the encouragement of some to whom life may appear at times a bit dreary. Lynn Challoner's story, brief as it is, certainly should be fine reading for generations still to come in the railroad world.

Lynn was born in 1891, at Bismarck, one of the coldest winter resorts this side of Reykjavik, which means that if he hadn't started his interesting career in the blithesome month of June he would indeed have faced a dreary outlook.

Ah, how well do we remember,
It was in a bleak December
That we spent a day in Bismark deep in snow.
The cold wind moaned and muttered,
And the language that we uttered
Was the worst that any railroader could know.

But, as we said in the beginning, you can't keep a good boy down,

Lynn Challoner.

and Lynn Challoner belonged right in that class. Strange to say, he did not start as a night operator shortly after being weaned, as so many great men have done. Lynn first attracted public attention at the age of 12 when he accepted a position, which is to say he got a job as water-boy for a construction gang on the Northern Pacific. And if you think this a soft snap you have several more chances coming, section and bridge men consuming more water to the mile, especially right after pay day, than any other creatures in captivity bar none. We had the same job ourselves, far back in the dim past which it is well to forget. But Lynn stuck to the work until he had achieved whatever it was he wanted to do, and presently went home and to school.

The official chronicles of the Northern Pacific say that when Lynn had been graduated from the high school at Jamestown, N. D., he "spent some time in agricultural activities," a fine lot of hooey meaning, doubtless, that the boy got a job on a farm, did all the nasty chores that no one else could be made to do, took orders from everyone on the place, and sobbed loudly when the boss made him quit work at 9 p.m. Agricultural activities! We had some of that also in our youth.

In 1910, we are told, young Challoner "obtained employment" in the Northern Pacific engineering department. Translated this conveys the fact that the young man carried several tons of chain and things wherever he went, explored the entire West for stakes with tacks in them, and spent his spare moments figuring up his wages and trying to keep from being garnisheed. Having discovered that the first two years of engineering is not much unlike working on a farm, Lynn decided to get an easier job. So he went to work as a freight trucker in the transfer sheds at Jamestown. This time he was in the right department. After a while he became rate clerk. Despite all he could do the road sent him back to Bismarck in 1914 as cashier, and in two years he was chief clerk. In 1917 he was transferred with the same title to Billings, Montana, where golf players wrap their legs in Hearst newspapers to keep mosquitoes from biting—the only papers they won't bite through.

Another two years and Lynn was sent back to Jamestown as freight supervisor in claim prevention work, and two years later, 1921, became traveling freight agent in North Dakota. This put him into the traffic department. In 1924 he took the agency at Fargo for the Northern Pacific,

served two years and was appointed assistant general freight agent with headquarters at St. Paul, and there he stayed until a few days ago when he was promoted to the position of assistant general freight and passenger agent with headquarters at Helena.

A pretty fine record, we think. Helena is a great mining town, but if Lynn wants to know anything about real mining he has only to play golf at the Helena Country Club.

Of Course, You Do Read

What railroad man could fail to profit from reading the life and work of Sir William Van Horne? Who would not be vastly informed — and entertained — in reading Commodore Vanderbilt, An Epic of American Achievement? How can any man hope to compete with others successfully if he knows nothing about his business except what he, personally, has achieved? It was possible in the young manhood of Cornelius Vanderbilt for an unread man to force himself ahead as that stubborn old fellow did. But it can't be done now. Competition, education, intelligence, culture, good manners—all these are encountered today in the business world.

Chauncey Depew said one day, referring to the fad, once very popular, that the eating of fish increased one's brain power. "I recall with delight," said Mr. Depew, "the story of a man who wrote his diagnosis to Dr. Oliver Wendell Holmes and said: 'Will you please prescribe how much fish I should eat a day for improvement of my mind?' The doctor answered, 'In your case I think it will be sufficient if you take for breakfast a whale on toast.' "

The moral is rather obvious. A good many successful men of today would be happier, be more welcome members of society and, incidentally, increase their own value if they read one book a week in addition to the regular literature of their business. We know now that brain power can not be increased by eating fish, but reading good books will help a great deal.

The Importance of Thinking

Everyone has heard the story about John D. Rockefeller's commenting on the peculiar fact that every time he visited the office of one of the high officials of the Standard Oil Co., he found that gentleman sitting or standing before a window, looking out, thinking. Finally John D., said something about it whereupon the thoughtful executive replied, "yes, I spend a good bit of time thinking, but I notice that every time I leave town for a few days I'm pursued by a flock of telegrams asking me this and that until I come back. I don't know what would become of Standard Oil if someone didn't think."

A story along much the same lines comes to the present chronicler about E. H. Harriman. Mr. Harriman, the relator says, was making a trip of inspection over his various lines through the West with Julius Kruttschnitt, his operating chief. It seemed to Mr. Harriman that every time he visited the operating manager in charge of any particular property, he found that gentleman's desk piled high with files, blue prints, specifications, and things. After experiencing this at numerous offices, Mr. Harriman said to Mr. Kruttschnitt:

"Why do our chief executives have to pass upon so many items?"

"That," said Mr. Kruttschnitt, "is customary in all railroad offices. The chief operating officials can't delegate these important matters to subordinates."

Mr. Harriman replied that he would like to see the work so organized that the chief would not have to busy himself with so much detail. He hoped, he said, that the day would come when he could call upon a chief executive and find him sitting with his feet up on the desk "doing some thinking."

It matters not how much capital you may have, how fair the rates may be, how favorable may be the conditions of service, if you haven't behind you a sympathetic public opinion, you are bound to fail.—Samuel Insull.

Governments always make a mistake when they take over or continue to do anything that is of purely a business nature. I believe that no single business in all the world is carried on by any government—national, state or municipal—which could not be better and more economically done by a firm of business men, who must use their own capital, who must meet competition, and who are responsible for the results of their staff's work.—H. Gordon Selfridge.

The most lovable quality that any human can possess is tolerance. Tolerance is the vision that enables us to see things from another person's point of view. It is the generosity that concedes to others the right to their own peculiarities. It is the bigness that enables us to let people be happy in their own way instead of our way.—Philadelphia Public Ledger.

A mail parachute of novel design, invented by a Swedish flying expert, Arnold Waldau, has been tried out in Stockholm.

It is equipped with a device by which the opening of the parachute is mechanically controlled. When it leaves the airplane it does not open immediately but continues its course downward, compact and folded. A few hundred meters from the ground a spring releases the canvas and the parachute unfolds.

The old style mail parachute opened as soon as it was thrown out of the speeding plane and often the canvas and the tubes containing the mail were wafted for miles.

Queer Things Recorded in June

—Herbert Photo.

One of the Queer Things That Came Our Way in June Was This Strange Equipment Now Running Between Dallas and Dufux, Oregon. They Do Say It Makes 30 Miles An Hour. One Man Runs It.

THE word "busses" endured a quarter of an hour's battle between court and police in Windsor, Ontario, one day recently, and came out as it went in, but mighty shaky. During a session of the police commission, the county judge and the police magistrate were examining a traffic by-law and came upon the word, which has been in other stiff encounters.

"Should there be one 's' or two?" the judge asked.

"I think there should be two, but I'll look it up," replied the magistrate.

After a few minutes' digging into a dictionary: "Ah, there's no such word as 'bus,' " he exclaimed. "It should be 'omnibus'."

"I think there's a word 'bus' in use in Canada," the judge persisted.

"There's a word 'bust', I know," retorted the magistrate dryly, but didn't say which kind of "bust" he meant.

Their legal training, official positions and their very reputations challenged by one measly little word! They raided bookshelves for lexicons, but the plural of "bus" remained coy. Slowly developed the spirit of combat against an unseen foe.

The judge decided upon strategy. He made a flanking attack. This by the process of elimination. From deep in the dictionary he asked, "what, if you please, is the plural of grampus?"

"First," the magistrate sparred for wind, "first I demand to know what is a grampus."

"I'm astonished," said the judge. "A grampus, as all intelligent persons know, is a large dolphin-like cetacean, and several other things, but it has no plural."

"Summons." This came from the secretary of the commission, under the impression that this was not a private encounter, "what's the plural of 'summons', 'mandamus', 'octopus'? All easy enough, gentlemen, but—."

"But," the judge interrupted, "what is the plural of 'bus'?"

Overlooking the fact that editors settle these disputed points for themselves, the police commission hoisted the white flag and admitted defeat. The word came out just as it had gone in—busses. Of course, the commission was wrong.

So He Backed Into It

G. A. McIlroy of Watsonville, Cal., just missed colliding with a Southern Pacific train at a crossing the other day. He swerved his car in front of the engine when a crash seemed inevitable, grazing the front trucks of the locomotive. Coming to an abrupt stop just beyond the truck, McIlroy made the wrong shift and backed into the rear car as it whirled by.

The crash ripped the entire running gear from his machine and hurled McIlroy and the wreckage of the body several feet. The car was wrecked but the driver escaped.

The Corpse Ran Away

A man staggered and fell in the path of the flying Pan-American, crack train of the Louisville & Nashville near Memphis not long ago. The limited thundered over his body, the engineer jamming on brakes furiously.

When trainmen returned to pick up the body the "corpse" leaped from the right of way and fled, unsteadily. Later the "victim" was arrested for drunkenness. He had remained prone as the train passed. He is Lee Holcomb of Beaverton, Ala.

The Fokker planes appear to gain constantly in popularity. The Danish army has decided to order 12 of that make, equipped with 220 hp. engines. These are to be pursuit planes according to Vice Consul Johnson at Copenhagen.

Cinder Plant At Frankfort, Ind.

A Modern Cinder Plant

Here we show a close-up view of a new cinder plant at Frankfort, Ind., installed by the Roberts Schaefer Company of Chicago. The picture shows the bucket tower, machine house and the 80 cubic foot bucket in its hoisting position. The bucket retains the same position as indicated in this photograph and by reason of the bucket top being always in a horizontal position there is no spillage of cinders at any point of the bucket travel. The plant is operated by a push button type controller which causes the bucket automatically to stop in its filling and dumping positions. A very substantial locking device is provided underneath the track hopper so that cinders can not be dumped except when the bucket is in the proper position under the hopper to receive them. This hopper is of cast iron plates and equipped with a cast iron gate so as to prevent damage to the bucket due to the quenching of red hot cinders in it. With this hopper arrangement a spray is provided so as to wet down all of the cinders while they are in the cast iron receptacle.

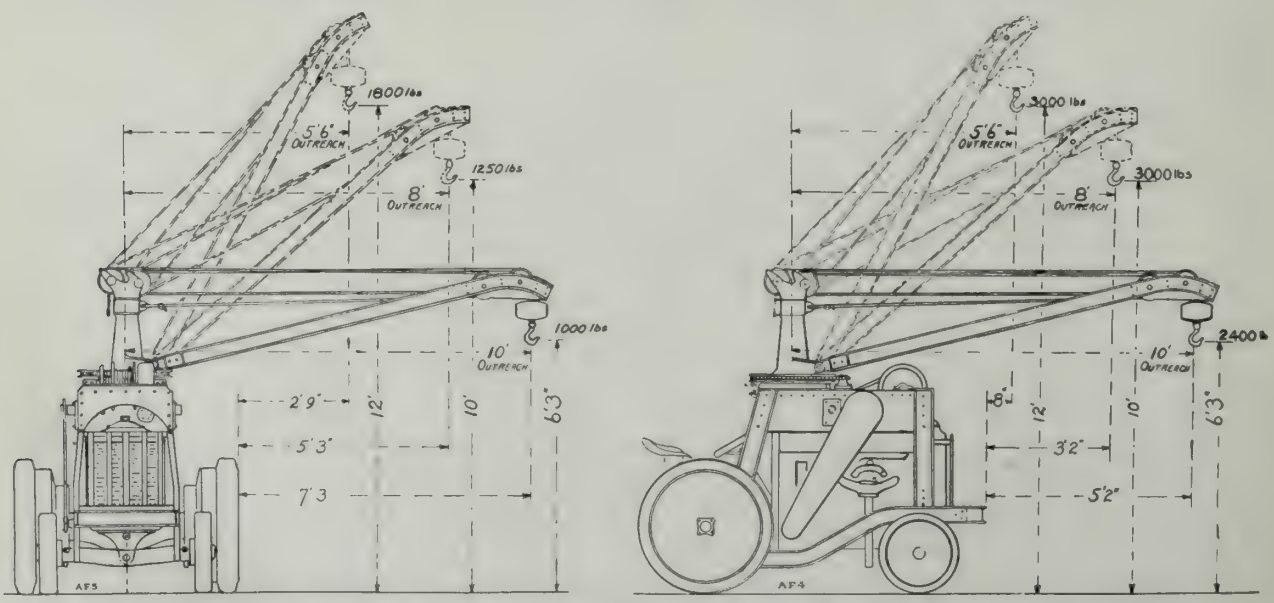
The plant is operated by a 15 horsepower high torque squirrel cage motor direct connected to a spur gear type reversible hoist. A magnetic brake is provided which automatically holds the load when the current is cut off and a traveling cam machine type limit switch operates in conjunction with the Cutler-Hammer controller to limit the travel of the bucket.

It will be observed that there is ample clearance around the structure for workmen to clean cinders from locomotive fireboxes and by reason of the pivoted apron which may be raised out of the clearance, there is full mainline clearance horizontal and vertically on the cinder shipping out track as well as on the engine tracks.

A Handy Little Crane

The Loadmaster Swing Crane has been designed to meet the growing need in the industrial field for a small locomotive type crane of general utility. It is a swinging crane of moderate price, capable of easily handling loads which cannot be handled advantageously by manual labor; which are either too small to justify large and costly crane units, or loads which, by reason of their location, are not within reach of ordinary hoist service.

The Loadmaster is mounted upon an industrial tractor. It moves under its own motive power, and the power for lifting and swinging loads is derived through the "power take off" from the same source, i. e., the tractor engine. With these characteristics, the Loadmaster becomes available to conditions where other cranes cannot be employed, and provides a range of usefulness far beyond the limitations of the ordinary crane unit. Furthermore, the Loadmaster may be used to haul loads or trailers attached to the tractor upon which the crane is mounted.



Operating Details of the Loadmaster Swing Crane, Mounted on An Industrial Tractor.

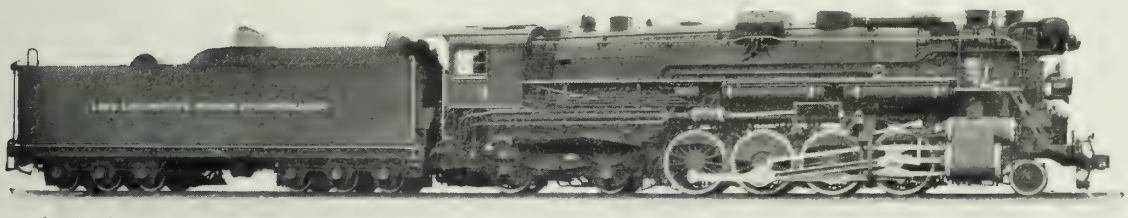
THE SAME PRINCIPLES

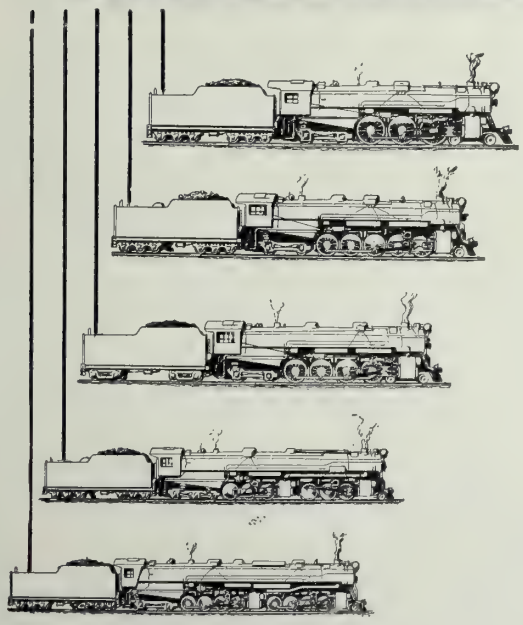
Any Size *Any Type*

THE Lima A-1 (2-8-4 type) locomotive has demonstrated its great power capacity and economy of operation in road service.

The same principles of design as found in the A-1 are applicable to locomotives of any size and for every service.

Wheel arrangements and driver weights may vary, but only by including the fundamental principles of the A-1 design can Maximum Power and economy of operation be obtained.





These Principles Are--

Ample Boiler Capacity

Large Grate Area—Low Combustion Rates

Limited Compensated Cut-Off in Combination with The Locomotive Booster

Articulated Four-Wheel Trailer Truck

Superheated Steam for Auxiliaries

Rod Drive distributing piston thrust directly over two axles

LIMA LOCOMOTIVE WORKS

Incorporated

The News of the Month

What's Been Going on in Transportation, Railroads, Automotive, Supply, Aviation

THE general offices of the Baldwin Locomotive Works were transferred, June 28, from Philadelphia to the handsome new structure at the Eddystone plant. Such a moving day, especially for a famous industrial organization such as the Baldwins have created ordinarily would be sufficiently interesting to hold anyone's attention, but the several thousand persons in the distinguished audience at Eddystone found their chief thrill, perhaps, in the courageous words of Samuel M. Vauclain, president of the works. Mr. Vauclain said the Baldwins were facing keen competition in a depressing time but this would not cause wage cuts or reductions in the staff.

"We have been passing through a slight temporary depression; we might just as well admit it," he added, "but we are almost out of it now.

"We are looking forward to greater prosperity than we have ever seen and prosperity for industry will not be at the expense of the workers' wages. We have reached more scientific ways of cutting down costs than pruning the pay envelopes. Increased production along the most modern lines is our watchword.

"Even with the high standards of American wages we can build locomotives and still compete on favorable terms with any manufacturers in Europe. American industries, so long as they have the advantage of a tariff do not need to cut wages to manufacture on an even basis."

Secretary of Labor, James J. Davis, and Samuel M. Vauclain, President of the Baldwin Locomotive Works, in the Cab of a Baldwin Locomotive at the Dedication of the New Administration Building Near Eddystone, Pa.

Mrs. Vauclain's prediction of better times was echoed by Secretary of Labor James J. Davis, who congratulated Mr. Vauclain on the latter's emphatic assertion that the new business prosperity would not be at the expense of workers' pay envelopes. Both speakers declared that American standards of living must be maintained and that the full pay envelope is the backbone of national welfare.

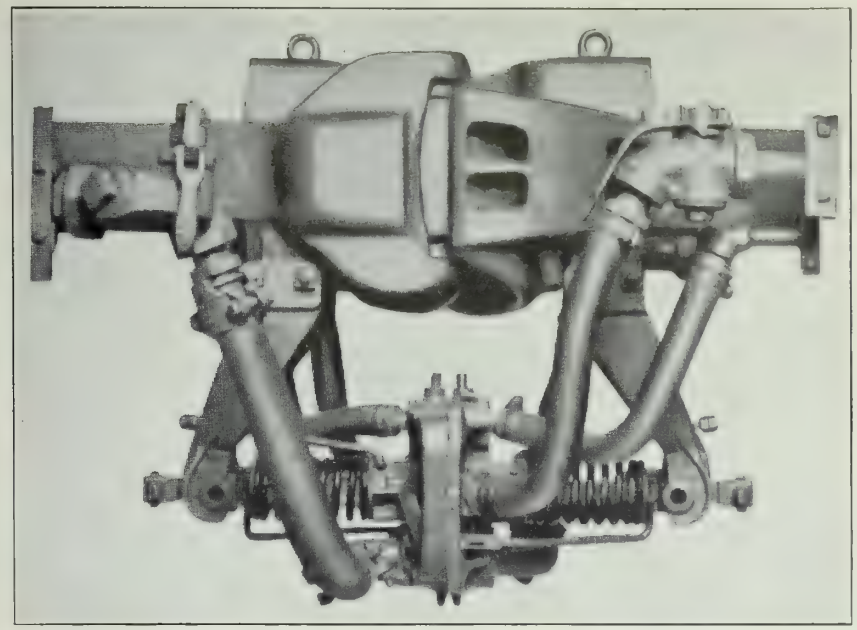
The exercises, attended by 5000 guests, including men high in the nation's financial, religious, industrial and political life, were held in the hollow of a great wooden amphitheatre, constructed in an angle of the new executive office building. Special trains carried the guests from Philadelphia, New York and Atlantic City. After the exercises a luncheon was tendered to the visitors and an inspection tour of the plant made by automobile.

The administration building stands in the form of a Greek cross. Its design affords daylight to every part of the structure. The building will house all operating departments, including the offices of Mr. Vauclain, the vice presidents and directors. In the center of the plaza in front of the administration building there will be erected a statue of Matthias W. Baldwin, founder of the company.

There is a shiny new railroad station at the top of the embankment with the name "Baldwin" in red letters and here, in the future, will be the home of the Baldwin works. The last wheel has turned in the almost century-old plant at Broad and Spring Garden streets, Philadelphia, the last machine and the last casting have been taken away to Delaware county.

But so far as its selling of locomotives in the four corners of the earth is concerned it will still be "Baldwin's, Philadelphia." The sales address is too valuable to be sacrificed, Mr. Vauclain declared and therefore the organization is to maintain separate offices in the new Fidelity-Philadelphia Trust Company structure.

Among the many distinguished guests at the Eddystone ceremonies were: Edward T. Stotesbury, Cardinal Dougherty, Rear Admiral Julian L. Latimer, former Mayor W. Freeland Kendrick, Alva C. Dinkey, C. E. Denny, vice president of the Erie; Charles Donnelly of the Northern Pacific; L. A. Downs, president of the Illinois Central; W. W. Atterbury, president of the Penn-



The AMERICAN AUTOMATIC CONNECTOR is the only automatic hose coupler in existence with a ten year continuous service record behind it.

There are thousands of AMERICAN AUTOMATIC CONNECTORS in successful operation today—more than have ever been in service before.

The AMERICAN AUTOMATIC CONNECTOR is built on scientific principles and is the result of many years' development work.

It is reliable in every respect.

Every dollar invested in AMERICAN AUTOMATIC CONNECTORS is a dollar put to work to earn dividends.

Write us for any information desired.

We are prepared to make immediate installations, large or small, in any part of the country.

THE CONSOLIDATED CONNECTOR CORPORATION

118 Noble Court **Cleveland, Ohio**

sylvania; Agnew T. Dice, president of the Reading Company; District Attorney John Monaghan; Albert M. Greenfield. In addition there were representatives of nearly all railroads in United States and some from Canada, Mexico, Chile and Cuba.

T. B. Wilson Heads the Superintendents

T. B. Wilson, San Francisco, was elected president of the American Association of Railroad Superintendents and Mexico City was chosen as the next convention city at the closing session of the organization's yearly convention at Memphis, June 15.

Other officers elected were: J. J. Franco, Mexico City, first vice president; C. E. Brower, Atlanta, second vice president; F. O. Whiteman, East St. Louis, third vice president; C. B. Forrester, London, Ontario, fourth vice president. J. Rothschild was reelected secretary and treasurer, unanimously All committeemen were reelected by acclamation.

Railroad Expenditures Lower

Capital expenditures actually made by the railroads for new equipment and additions and betterments to property used in connection with the transportation service, amounted to $128,428,000 in the first three months of 1928, according to a report submitted by the bureau of railway economics to the board of directors to the American Railway Association. Compared with the corresponding period of 1927 this was a decrease of $26,594,000 while it also was a decrease of $37,327,000 under the corresponding period in 1926.

Total capital authorizations as of April 1, this year, including the carry-over from 1927, amounted to $593,757,000 compared with $724,853,000 for the same period in 1927, and $821,880,000 in 1926. This decrease in authorizations for this year is due principally to the smaller carry-over from the previous year. The carry-over for 1928 amounted to $323,692,000 compared with $455,828,000 for 1927 and $467,057,000 for 1926. The authorizations for capital expenditures made between January 1 and April 1, this year, compare more favorably with those for 1927, being $270,065,000 for 1928 and $269,025,000 for 1927. Capital expenditures for the past five years have aggregated $4,338,721,000.

The amount of expenditures during the first three months of 1928 for new equipment was $33,016,000, compared with $55,346,000 for the corresponding period of 1927. Roadway and structures expenditures aggregated $95,412,000 compared with $99,676,000 for 1927. This decrease in equipment expenditures for the first three months of the year is due, in part, to the small carry-over from last year's authorizations for such expenditures. The decrease of equipment expenditures this year is in line with smaller equipment orders and installations.

A. F. Whitney, New Chief of the Brotherhood of Railroad Trainmen.

In the first three months this year, the railroads installed 9,820 freight train cars, which was a decrease of 3,636 compared with the number installed during the same period in 1927. Passenger train cars placed in service in the first quarter in 1928 totaled 537 or an increase of 80 over the same period the year before. Locomotives installed were about equal in the two years, there having been 435 in the first three months this year compared with 447 one year ago. On April 1, the railroads had 22,233 freight train cars on order compared with 26,717 on the same day in 1927. Passenger train cars on order totaled 1,036 compared with 1,013 on April 1 last year while locomotives on order on April 1 this year amounted to 137 compared with 244 in 1927.

Capital expenditures actually made in the first three months this year for locomotives amounted to $10,493,000 which compares with $19,771,000 made during the corresponding period of last year. For freight cars, expenditures amounted to $13,601,000 compared with $18,192,000 in the first quarter of 1927. For passenger cars, capital expenditures in the first three months this year amounted to $5,785,000 compared with $12,346,000 for 1927.

Total capital expenditures for roadway and structures made by the railroads of this country in the first three months this year amounted to $95,412,000. This was a decrease of $4,264,000 under the same period last year.

Capital expenditures for additional track in the first three months in 1928 amounted to $24,744,000 compared with $30,145,000 during the corresponding period last year. For heavier rail, expenditures totaled $9,621,000 compared with $8,275,000 in 1927. For shops and engine houses, including machinery and tools, expenditures totaled $7,964,000 compared with $10,941,000 in 1927. For all other improvements $53,083,000 were expended in the first quarter this year, an increase of approximately $3,000,000 compared with the same period in 1927.

Lindbergh Gets Another Job

Col. Charles A. Lindbergh has accepted appointment as consulting aeronautical engineer to the Pennsylvania Railroad, Gen. W. W. Atterbury, president of the road, announces. He will serve in an advisory capacity in the Pennsylvania's part in the coast-to-coast air-rail service to be operated by the Transcontinental Air Transport Company. Col. Lindbergh is chairman of the latter company's technical committee.

Six Trains Discontinued South

The public service commission of Georgia has granted authority to the Atlanta, Birmingham & Coast to discontinue four passenger trains between Brunswick and Thallman. The service given by these trains will be rendered in the future by the Coastal Transport Co., a motor bus line operating at Brunswick. The Wrightsville & Tennille railroad was authorized to discontinue two passenger trains between Dublin and Hawkinsville. The commission denied a petition filed by the Central of Georgia railroad asking authority to discontinue trains between Macon and Millen. The commission allowed the railroad to discontinue these trains between Millen and Tennille but required the continued operation between Tennille and Macon.

Monthly Passes for $9

The Pacific Electric Ry. Co. began, July 1, selling monthly passes for $9, good for bearer and for any number of rides between Los Angeles and Santa Monica, Ocean Park and Venice.

The present 60-ride commutation fare is $11.65. The pass therefore will result in a reduction of $2.65 a month, in addition to giving the pass owner the privilege of additional transportation. The pass will be honored via either the Ven-

RALSTON BUILT

New 70-Ton Hopper Car Embodying Unusual and Novel Features

Built For

The Wine Railway Appliance Company

By

THE RALSTON STEEL CAR COMPANY

COLUMBUS, OHIO

Builders of Freight Cars for a Quarter of a Century

The Handsome New Administration Building of the Baldwin Locomotive Works, Eddystone, Pa., Just Dedicated With Elaborate Ceremonies.

ice short line, Sawtelle line, or Hollywood-Venice line, and also be good on local street cars within the first zone of Los Angeles and within the 5-cent zone of Santa Monica, Ocean Park and Venice.

This reduced transportation is similar to the monthly pass now in effect between Los Angeles and Pasadena, and is established for an experimental period, July 1 to October 31, 1928.

Plenty of Surplus Cars

Class I railroads had 327,499 surplus freight cars in good repair and immediately available for service June 15, says the car service division of the American Railway Association. This was an increase of 9129 cars compared with June 8, when there were 318,370 cars. Surplus coal cars, June 15, totaled 110,744, a decrease of 1799 cars within about a week, while surplus box cars totaled 163,577, an increase of 10,567 for the same period. Reports also showed 26,139 surplus stock cars, a decrease of 153 cars under the number reported on June 8, while surplus refrigerator cars totaled 17,683, an increase of 427 for the same period.

Fewer Cars Need Repairs

Freight cars in need of repair on June 15 totaled 147,990 or 6.6 per cent of the number on line, according to reports filed by the carriers with the car service division of the American Railway Association. This was a decrease of 3,369 under the number reported on June 1, at which time there were 151,359 or 6.7 per cent.

Freight cars in need of heavy repairs on June 15 totaled 107,448 or 4.8 per cent, a decrease of 909 compared with June 1, while freight cars in need of light repairs totaled 40,542 or 1.8 per cent, a decrease of 2,460 compared with June 1.

Holland Branch Work Begins

President George F. Detrick, of the Sacramento Northern Ry., which is controlled through stock ownership by the Western Pacific, announced June 11 that the contract had been awarded for the construction of the Holland branch of the Sacramento Northern. The Holland branch will leave the main line of the San Francisco-Sacramento, controlled by interests allied with the Western Pacific, at Riverview, six miles southwest of Sacramento, and traverse the Glide, Lisbon and Holland districts in the delta region. The cost of constructing the Holland branch, which will be a standard gauge electric railway, is estimated at approximately $800,000.

"Construction of the Holland branch will give the fruit and vegetable shippers of this rich district their first rail transportation service", said Mr. Detrick. It is the plan of the Sacramento Northern to make the Holland branch complete in every respect, and up to date facilities will be provided. The district promises a large tonnage and the extension into this territory will strengthen not only the Sacramento Northern and the San Francisco-Sacramento but also the Western Pacific which will provide transcontinental service to and from the East."

The contractors will begin work on the section south of the Glide district immediately. It is expected that the Holland branch will be completed and placed in operation early next year.

The project is one of the principal features of the development plans of the Western Pacific and allied interests for Sonoma, Napa and Solano counties which call for a total expenditure of approximately $4,500,000.

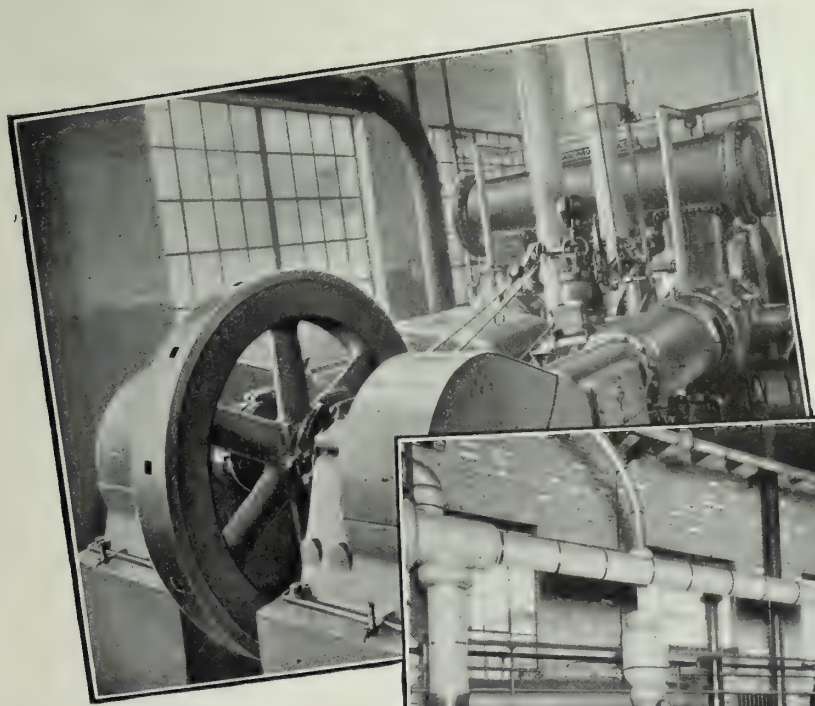
The F. W. & D. to Celebrate

A west Texas celebration of the completion of 250 miles of railroad on the Fort Worth & Denver, serving Lubbock, Estelline, Silverton and Dimmit, and opening up a new area in the Panhandle-Plains section of northwest Texas, will take place the latter part of July. The celebration, which will be attended by business men from north, central, west and northwest Texas, will be at Sterley Junction, where the two new branch lines cross. This biggest railroad trackage completed in the Southwest in a dozen years will serve the new cotton and wheat country.

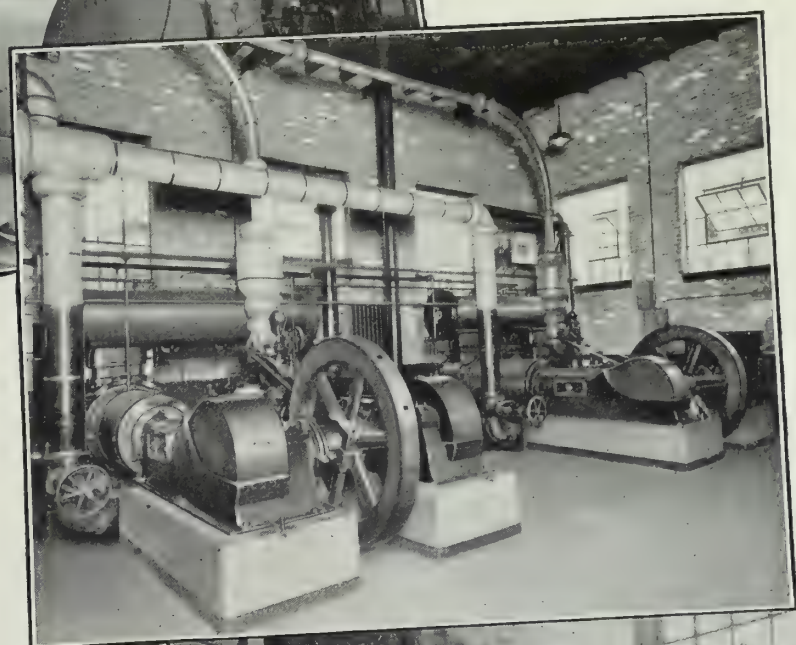
Executives Hold School in Estes Park

The School of Industrial Railroad and Business Executives for 1928 is to be held in Estes Park, July 23 to 29. Classes will be in session every morning, the

CP COMPRESSORS Recently Installed By Three Large Railroads

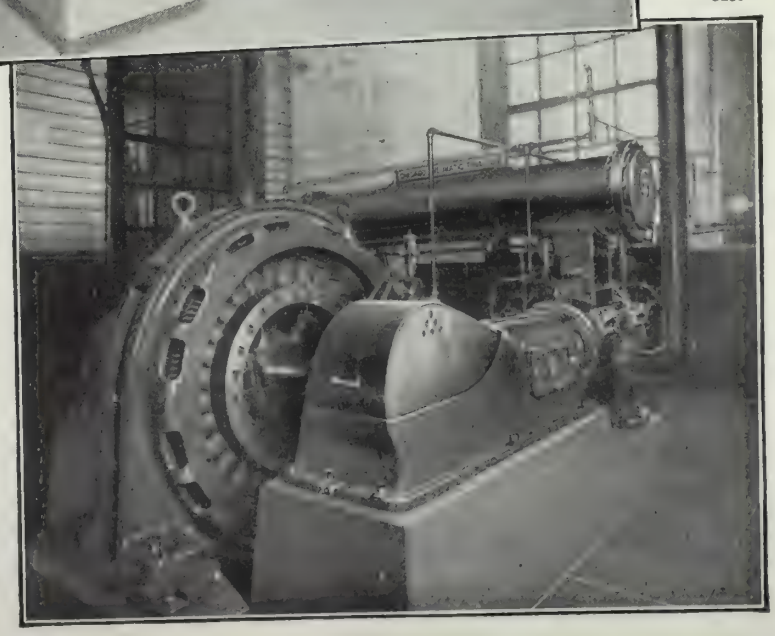


These installations are repeat orders from three prominent railroads whose experience with CP Compressors has proved their reliability and high sustained efficiency.



The Simplate Air Valve; the piston type of steam valve; efficient regulation of both the steam and motor-driven types; sturdy construction; reliable automatic lubrication and world-wide CP service facilities are some of the reasons why CP Compressors are preferred by railroad engineers.

C283



There is a CP Compressor, stationary or portable, in steam, oil, belt or direct motor driven type, for every compressed air purpose. Write for literature.

Chicago Pneumatic Tool Co.
Railroad Dept.
6 East 44th St. - New York
310 S. Michigan Ave. - Chicago
1004 Mutual Bldg. - Richmond, Va.

afternoons will be left open for recreation and programs have been arranged for the evenings. Friday night the school will be merged with the Conference on Human Relations and will continue until Sunday morning.

To Court for Higher Fares

The Rome, Ga., Railway has filed a petition with the state public service commission asking permission to establish a two-cent increase in street car fares charged in that city. The company, which is owned by the Georgia Power Co., seeks to charge eight cents instead of six cents straight fare. It asks permission to sell two tickets for 15 cents and to sell tickets to school children at four cents instead of three cents as at present. It is stated in the petition that the company does not receive a fair return on its investment at the present rates.

A Fine Service Record

Since December 20, 1925, 8000 fruit trains have been handled over the Union Pacific between Ogden and Council Bluffs, and not one of them has arrived behind schedule, according to an announcement from W. M. Jeffers, general manager. This is believed to be a world record for freight trains.

Santa Fe Buys C. & O. W.

The Interstate Commerce Commission has authorized the Atchison, Topeka & Santa Fe to acquire control, by purchase of capital stock, of the Clinton & Oklahoma Western. The commission also authorized the leasing of the Clinton & Oklahoma Western by the Panhandle & Santa Fe Railway. The Santa Fe paid $800,000 for the Clinton & Oklahoma Western.

Big Terminal for Toledo

A terminal at Toledo to cost about 12 million dollars on Presque Isle where the Maumee River flows into Lake Erie is expected to be started this summer as a result of the approval of the merger of the Pere Marquette and the Chesapeake & Ohio.

Another Air-Rail Line

The Rock Island Lines are about to announce plans for air-rail passenger service between Chicago and Los Angeles in connection with National Air Transport, Inc. James E. Gorman, president of the Rock Island, said a few days ago that he had discussed the matter with Col. Paul Henderson, vice president and general manager of National Air Transport.

The proposed line will reduce traveling time between Chicago and the west coast to 37 hours. A night Pullman trip will be made on the Rock Island between Chicago and Kansas City, a daylight flight from Kansas City to Phoenix or Tucson, Ariz., and a night trip by train from there to Los Angeles.

May Net Was Higher

The aggregate net operating income of the first forty Class 1 railroads to report May earnings was $48,614,000, as compared with $46,872,000 for those roads in the same month of 1927, an increase of 3.7 per cent. April net for the roads was $39,663,000. Gross revenues aggregated $282,754,000, against $284,966,000 in May last year, a decrease of 8 per cent. April gross was $263,253,000. April net decreased 4.1 per cent from the 1927 month and gross declined 4.9 per cent.

The gross and net of the Chicago & North Western in May increased over the previous year. The Boston & Maine showed slightly larger surplus, after charges. A larger surplus was reported by the Missouri-Kansas-Texas and the Denver & Rio Grande decreased its May deficit, after charges, from $11,670 in 1927 to $72,474.

Chesapeake & Ohio Shops

Enlarged shop facilities for the Chesapeake & Ohio which were planned for Richmond prior to the recent merger attempts of the road, now are being discussed, according to William J. Harahan, president. It is not decided that the shops will be located in Richmond. They are expected to employ between 2,000 and 3,000 men.

Western Air Lines Merge

Merger of all interests of the Pacific Marine Airways, which has been successfully operating an aerial passenger service between Wilmington and Catalina Island, with Western Air Express, is announced by Harris M. Hanshue, president of Western Air Express, and Ellard A. Bacon of the Pacific Marine Airways.

O'Fallon Case October 1

The St. Louis & O'Fallon Ry. case, involving an attack upon the methods used by the Interstate Commerce Commission in valuing railroads, has been advanced by the U. S. Supreme Court for hearing October 1.

Would Reopen C. & O. Case

Short line railroads have petitioned the Interstate Commerce Commission to reopen for reconsideration the Chesapeake & Ohio case in which the commission recently authorized the acquisition of the Pere Marquette but denied authority to acquire the Erie.

The petition was filed by the Arcade & Attica Railroad, Attica & Southern, New York & Pennsylvania Railway and other short lines and alleges that "the commission's report improperly relies upon the Chesapeake & Ohio voluntarily to give adequate consideration to all the lesser lines which maintain direct traffic relations with the C. & O. or Pere Marquette."

Coast-to-Coast Buses

The American Motor Transportation Co., a Delaware corporation, organized as a consolidation of existing bus companies and companies in process of creation to operate a coast-to-coast service, has filed application with Colorado public utilities commission for certificate of convenience and necessity to operate in and through this state. California financiers and officers of California Transit Co. are identified with the company. Subsidiaries include the following: California Transit Co., a California corporation with terminals at Los Angeles, Sacramento, Oakland, San Francisco and Portland; the Pioneer-Southwestern Stages, Inc., an Arizona corporation, to operate between Los Angeles and Denver over the Santa Fe Trail; the Pioneer Stages, Inc., a Nevada corporation, to operate between Denver and Chicago, via Omaha and Denver and Kansas City; Yelloways of Missouri, Inc., a Missouri corporation, operating between Kansas City and St. Louis, Tulsa and St. Joseph; and Pioneer-Eastern Stages, Inc., to operate between St. Louis and Chicago, Chicago and Detroit, Chicago and Indianapolis, and St. Louis and Philadelphia.

New Line to Rye Open

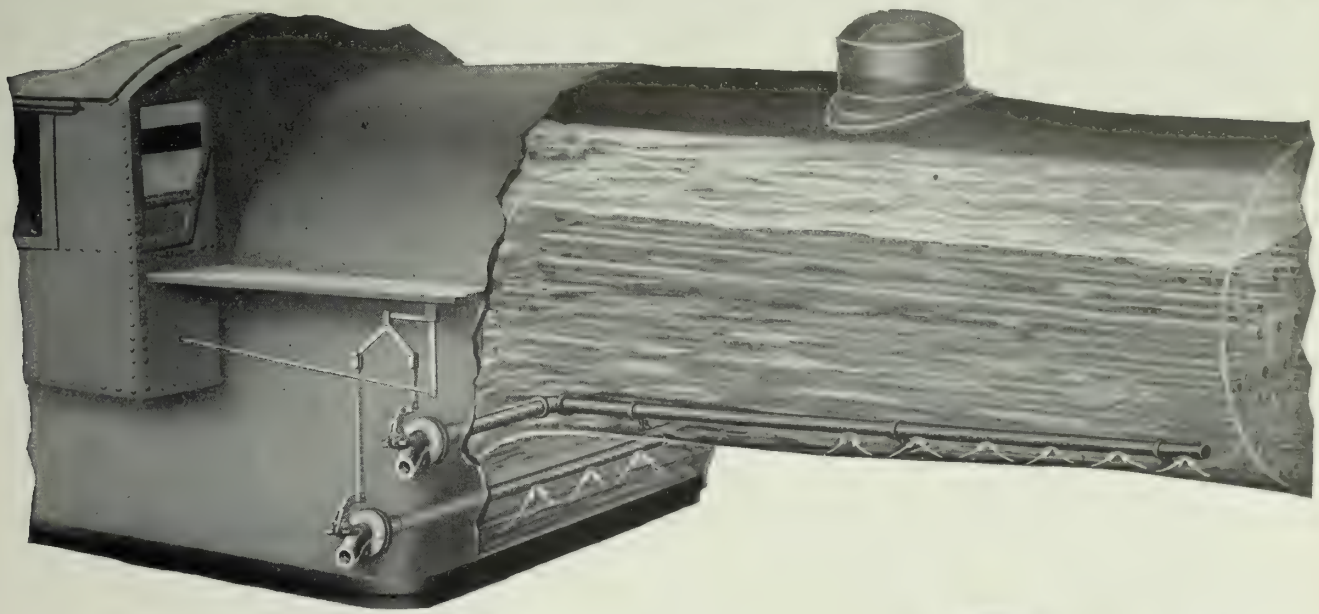
Formal opening of the extension of the New York, Westchester & Boston R.R. from Harrison to Rye, took place June 30. Service to New York started at midnight, that date, and will be maintained at 20-minute headway, with frequent trains during the late night and early morning hours, thus giving all-night railroad service to Rye for the first time in the history of the village.

Work is progressing toward the extension of the system from Rye to Port Chester, which is ultimately to be the eastern terminus. The New York City terminus is at 133d street and Willis avenue, the Bronx.

B & M to Spend $16,000,000

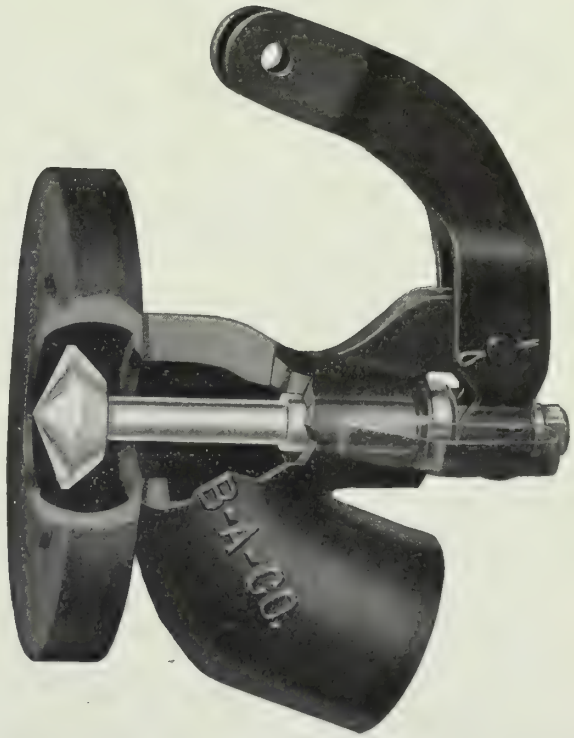
Improvements to the roadway, structures and equipment of the Boston & Maine Railroad in the current year will cost about $16,000,000, according to J. W. Smith, general manager, in a report to the New England Shippers' Advisory Board. Rock ballasting of the

THE B-A-CO. SLUDGE REMOVER



A CLEAN boiler, like a clean conscience, means freedom from a lot of worry. Every locomotive man knows what these troubles are: Scale formation, foaming, corrosion, boiler tube and firebox leaks.

It is also realized that removal of the sludge, even with the blow-off cocks alone, will greatly relieve these troubles, especially where chemical treatment to throw down scale-forming solids is used. The B.-A. Co. Sludge Remover multiplies this relief many times over.



Locomotive Blow-Off Cock (Wilson Type—For Sludge Remover or Internal Pipe Application)

For Detailed Description Write for New Booklet.

THE BIRD-ARCHER COMPANY

Manufacturers of Supplies of Boiler Chemicals for Water Treatment

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western route would be completed this fall, he said, and on the main line, between Boston and Lowell, rock ballasting is well under way.

"The 20 powerful new locomotives, designed for long, continuous hauls, recently put into service on the road, already are cutting established schedules," said Mr. Smith.

A "Stop Loss" Petition

The Los Angeles & Salt Lake R.R. has asked the state railroad commission for permission to discontinue its local passenger service between Los Angeles and Anaheim, Los Angeles and Pasadena, and Los Angeles and San Pedro.

Northwest Traffic Shows Gain

Railroads serving the Northwest region made the best showing in traffic volume of all carriers reporting earnings thus far this year.

Increases in gross revenues both for May and the first five months of 1928 over the corresponding periods last year, were shown by the Burlington, the North Western, the Great Western, Great Northern, Northern Pacific, Union Pacific, the Milwaukee, the Omaha and the Soo System.

Net Ton Miles Some Lower

The volume of freight traffic handled by Class I railroads in the first four months of 1928 amounted to 147,296,-210,000 net ton miles, the bureau of railway economics reports. This was a decrease of 8,113,006,000 net ton miles or 5.2 per cent below the corresponding period last year.

Railroads in the eastern district for the four months period reported a decrease of 10.1 per cent in the volume of traffic handled compared with the same period in 1927, while the southern district reported a decrease of 7.7 per cent. The western district reported an increase of 3.4 per cent.

In April, the volume of freight handled by Class I roads amounted to 35,-866,377,000 net ton miles, a decrease of 1,244,428,000 net ton miles or 3.4 per cent below April, 1927. In the eastern district, there was a decrease of 6.5 per cent in April compared with the same month last year in the volume of freight traffic while the southern district showed a decrease of 9.8 per cent. The western district reported an increase of 4.3 per cent.

Revenue Loadings Lower

Revenue freight loadings for the week ending June 23, last, totaled 986,789 cars.

This, the American Railway Association says was a decrease of 16,503 cars, compared with the preceding week and a decrease of 31,271, compared with the corresponding week in 1927.

Miscellaneous freight loading for the week ending June 23, last, totaled 385,-344, a decrease of 7164 cars, compared with the corresponding week last year; coal, 144,892, decrease, 11,497; grain and grain products, 33,340, decrease, 7451; live stock, 24,362, decrease, 2721; loading of merchandise in less than carload lots, 256,388, decrease, 1283; forest products, 67,543, decrease, 572; ore, 65,528, decrease, 735, and coke, 9397, decrease, 992.

Peace Between Florida and Georgia Now

After several months' negotiations a definite understanding has been reached whereby trucks hauling loads from Georgia into Florida may do so without paying the special license of over $100. This also gives Florida trucks the privilege of bringing loads from Florida into Georgia without an extra cost.

Current American Shipbuilding

On June 1, 1928, American shipyards were building or under contract to build for private shipowners 413 steel vessels of 223,147 gross tons compared with 409 steel vessels of 220,889 gross tons on May 1, 1928, according to the bureau of navigation, department of commerce.

There were 85 wood vessels of 36,068 gross tons building or under contract to build for private shipowners during the same period, compared with 77 wood vessels of 30,896 gross tons on May 1, 1928.

B & A Award Upheld

The supreme court of Massachusetts has sustained a verdict awarding judgment of $169,012 against the Central New England R. R. in favor of the Boston & Albany R. R. The Central agreed to pay the B & A $15,000 a year for the right to run two freight trains and three passenger trains over its line from Agawam Junction to Springfield. The Central had a loss of $38,000 in operating that line in 1920 and in 1921 asked the I.C.C. for permission to abandon it, which was denied. The contract runs until 1940.

S. P. to Build in Oregon

Immediate construction of 97 miles of track connecting Klamath Falls, Oregon, and Alturas, Cal., to give Oregon and northern California a new east and west line is announced by William Sproule, president of the Southern Pacific. The line will connect the Southern Pacific's Cascade Line of the Shasta Route with its Nevada-California-Oregon line which connects with the Southern Pacific Overland Route at Fernley, Nevada.

Work on this new connecting link will begin without delay and is in accordance with approval of the Interstate Commerce Commission. Survey of the new line has just been completed by company engineers. The line will extend southeasterly from Klamath Falls, through Merrill, then across Tule Lake which has been drained, to Cornell and then easterly to Alturas, serving a fine agricultural territory south of Klamath Falls in the Klamath Basin and one of the largest stands of virgin pine timber in the United States.

Carriers Oppose Bus Competition

In addition to taking out of service more than 20 local passenger trains, due to motor bus competition, the railroads of Texas are facing the same situation in short hauls of freight. They have applied to the railroad commission for authority to lower their freight rates on cotton to the port of Corpus Christi from points within a radius of 100 miles, because of motor truck competition. The railroads seek to place their freight rates on the same basis as those of the motor truck companies. The latter opposed the application at the hearing before the commission.

F. R. Dalzell, traffic manager of the Houston Cotton Exchange, declared the proposed lower rates would give Corpus Christi an advantage over Houston.

A Daily on U. P. Trains

A train daily newspaper to give passengers information they may desire to have at each stage of the 2½ day journey from Chicago to Los Angeles started its career on the Gold Coast Limited of the Union Pacific July 2. It is a four-page illustrated paper of larger than tabloid size and is called "The Overland Mail." The first copy is delivered to the passengers the first morning out, at Omaha, the second the next morning in western Wyoming and the final one at Yermo, Calif. The papers are all prepared in advance of the train's departure. Their "news" is correct information about the states, towns and other points of interest that are being passed. High lights of the colorful history of these western places and substantial facts concerning them abound in the papers. "The purpose," said W. S. Basinger, Union Pacific passenger traffic manager, "is not only to entertain the traveler but to spread real understanding of the west among its visitors." The paper is believed to be the first of its kind.

S. P. Requests Bridge Permit

The Southern Pacific has asked permission from the Interstate Commerce Commission to build a bridge across Suisun Bay in California and to abandon its ferry system between Porta Costa and Benicia. The bridge and connections will be six miles long and give direct rail connection between Southern Pacific lines on opposite sides of the bay. No estimate of the cost was filed with the preliminary application.

P. R.R. Bus Service

The Universal Trade Press Syndicate says the Pennsylvania General Transit Co., on behalf of the Pennsylvania Railroad, has renewed its application before the public service commission of Pennsylvania for permission to operate a bus line between the buroughs of Washington and Waynesburg, in southwestern Pennsylvania. The application was submitted first in February but Gov. Pinchot declined to approve the charter, and it was decided to postpone the matter until Mr. Pinchot's term expired. Now, under the new governor, the application has been renewed. This shows it is proposed to operate a fast bus line which will supplement the present train service and provide a more frequent and faster service between the two points named. For the last 48 years transportation between these two places has been supplied by the Washington & Waynesburg R.R., a branch line and subsidiary of the Pennsylvania R.R. Patronage of the passenger trains on this line has declined so that it was necessary to curtail the service materially. The proposed motor service will include handling of mail, baggage and express.

It is 28 miles from Washington to Waynesburg by rail or by highway. The running time by rail is one hour and forty minutes. Bus schedules will provide a run of one hour in each direction. The announcement states it is not the plan to enter into competition with the general business of transportation by motor bus or motor truck, but to do so only when such auxiliary operation is necessary to protect existing railroad business or might result in greater economy of public convenience in connection with railroad operation.

More Rail and Air Service

Three northwest railroads, the Northern Pacific, the Chicago, Milwaukee, St. Paul & Pacific, and the Chicago, Burlington & Quincy, and two air transportation companies entered into an agreement July 10 to provide air and rail transportation from Chicago to the Pacific Coast via Minneapolis and St. Paul. The new service, which will cut one day from coast-to-coast travel, will be put into operation about August 15. The air transportation companies are the Transcontinental Air Transport and the Northwest Airways.

The agreement calls for a passenger plane to leave Minneapolis at 8:30 a.m., St. Paul ten minutes later, arriving at Chicago in time for the passengers to board noon trains for the East. The return plane will leave Chicago after the important eastern trains have arrived, and will arrive at St. Paul at 7 p.m., and Minneapolis at 7:10 p.m.

As chairman of the technical committee of the Transcontinental Air Transport, under which the new air service will be operated by the Northwest Airways, Col. Charles Lindbergh will be an ex-officio member of the air service committee which will supervise the service.

Reservations in the planes will be made in the East by railroad agents through the Chicago office of the Northwest Airways and in the West through the St. Paul office. The fare for the air trip will be $45, including transportation from railroad stations to the air fields.

Building the West

LIKE twin mountains standing across a road, Time and Distance once formed the principal obstructions to the development of the West. While the coming of the Iron Horse broke down these barriers, bringing consumers of the East and of Europe within reach of every western farm and ranch, western prosperity still is materially affected by the readiness with which its products find near and distant markets.

Within the last five years Southern Pacific has spent hundreds of millions of dollars in new capital for facilities, equipment and line extensions with which to assure the free flow of agricultural products to the markets of the East.

The company also is helping to widen Pacific Coast markets by speeding the industrial development of the West. Within the last three years Southern Pacific has located 1656 new industries in the territory served by Pacific Lines. Each year Southern Pacific spends approximately $1,300,000 on advertising to attract new settlers, new industries and tourists.

Thousands given employment by new industries, as well as the annual tens of thousands of tourists, help to widen and make more profitable home markets for the products of the soil.

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Railway Construction

Tracks and Yards

CALIFORNIA.—The Pajaro Valley Consolidated R.R. Co. has asked for authority to abandon its 40 miles of line in Monterey and Santa Cruz Counties.

FLORIDA.—The Alabama & Western Florida, a new corporation, has asked the I. C. C. for authority to operate its line from Chipley to Southport, 38 miles.

MEXICO.—The Colorado River Land Co. will construct, it is reported, a railway in Lower California to extend from Calexico to the mouth of the Colorado River, ending seven kilometers southeast of Puerto Isabel, Sonora. The grant obtained is for 99 years.

MICHIGAN.—The Grand Trunk Western, it is reported, has permission to construct a 7-mile belt line at Pontiac, at an estimated cost of $647,000.

NEBRASKA.—The Union Pacific has ordered the relaying of a 21-mile stretch between Hastings and Fairfield with 90-pound rails, which will complete the line from Kansas City to Gibbon with this weight rail. The work is to be finished by October 1.

NEW MEXICO.—The El Paso & Southwestern has asked the I. C. C. for authority to abandon 31 miles of line between Deming and Hermanas. The line is leased by Southern Pacific and is paralleled by other Southern Pacific lines.

NEW YORK.—The Erie has let a contract to Arthur McMullen Co., New York, for $100,000 yard facilities at Port Jervis.

NORTH CAROLINA.—The Bonlee & Western has asked the I. C. C. for authority to abandon its entire line extending from Bonlee to Bennett, 10 miles, because it no longer pays operating expenses.

OHIO.—The I. C. C. has authorized the Detroit, Toledo & Ironton to construct a 9-mile extension from a connection with its main line at Cairo to its main line near Lima.

PENNSYLVANIA.—The New York, Chicago, & St. Louis and the B. & O. have petitioned the I. C. C. for reconsideration of its recent decision authorizing the Pittsburgh & West Virginia to construct a 38-mile line from Pittsburgh to Connellsville.

TEXAS.—The San Antonio & Aransas Pass has asked permission to abandon the proposed construction of a 7½-mile line from McAllen to the Rio Grande boundary.

Buildings and Structures

COLORADO.—Sterling. Roberts & Schaefer has a contract from the C. B. & Q. for the latest model "N. & W." type electric, two-track, cinder plant.

FLORIDA.—Pensacola. The Frisco, it is said, plans the construction of a passenger station here on the Muscle Shoals, Birmingham & Pensacola, to replace the station now in use.

ILLINOIS.—Blue Island. The Indiana Harbor Belt has let a contract to Roberts & Schaefer for a latest model, large capacity, "N. & W." type, electric cinder plant.

—Chicago. The Rock Island will build a reinforced concrete and brick commissary building at 51st street, to cost about $200,000 replacing one destroyed by fire. Contract has been let to Dwight P. Robinson & Co., Inc., New York.

—Pekin. Roberts & Schaefer has a contract from the Santa Fe for an automatic loading, electric "N. & W." type engine coaler to be built immediately.

MAINE. — Northern Maine Junction. The Bangor & Aroostook has let a contract to Roberts & Schaefer for a simplex automatic electric locomotive coaling plant to be built in connection with a 10,000-ton storage capacity Beaumont drag scraper equipment.

MICHIGAN. — Durand. The Davis-Stuntz Co., Detroit, has a contract from the Grand Trunk Western for additions and alterations to the engine house here.

MISSOURI.—Dodson. The Missouri Pacific plans to abandon the sheep pens at Leeds and to construct four new ones and accompanying chutes, a grain elevator, a feed mixing plant and an office building here. The contract has been let to the List & Weatherly Construction Co., Kansas City, and will cost about $400,000. Three of the pens will be 130 by 1,000 ft. and the other will be 400 by 600 ft.

—Kansas City. The C. B. & Q. has given Roberts & Schaefer a contract for a "N. & W." type electric, two track, cinder plant to be constructed here.

MONTANA. — Glendive. The Ogle Construction Co., Chicago, has a contract from the Northern Pacific for a 500-ton electrically operated steel coaling station, it is reported.

NEBRASKA. — McCook. Roberts & Schaefer has a contract from the C. B. & Q. for the latest model "N. & W." type electric two-track cinder plant.

NEBRASKA.—Omaha. It is reported

that the Illinois Central will enlarge the grain elevator here by the addition of storage space for 1,000,000 bu. of grain.

NEW JERSEY.—Kearney. Allen N. Spooner & Son, Inc., New York, has a contract from the Pennsylvania for the construction of a freight delivery warehouse here, to be of steel and concrete and to cost about $190,000, it is reported.

OHIO.—Cleveland. The Cleveland Union Terminals has let a contract to Aronberg-Fried Co., New York, for the construction of a station and several viaducts at the terminal here.

—Toledo. The Ohio Central has started work on the $1,500,000 development to double the coal dumping capacity of the docks and make them of a capacity of 1,500 cars a day. A contract has been awarded to Newton-Baxter, Toledo, for deepening the channel, making 190,000 cubic yards of hydraulic fill and extending the present docks a half mile. Work will be completed early in 1929. An all-electrical coal dumping machine, which picks up cars weighing as much as 120 tons and dumps the coal they contain into vessels, will be installed.

PENNSYLVANIA.—Griffin. The B. & O. has let a contract to the Pittsburgh-Des Moines Steel Co., Pittsburgh, for water treating plants here, at Layton and at Windwood, to cost about $45,000.

—Layton. See Griffin, Pennsylvania.

—Windwood. See Griffin, Pennsylvania.

WYOMING. — Sheridan. Roberts & Schaefer has a contract from the C. B. & Q. for the latest model "N. & W." type electric two-track cinder plant.

Locomotive Orders

According to the A. R. A. Class 1 railroads installed 700 locomotives in the first five months this year. Compared with the corresponding period last year, this was a decrease of 82, and a decrease of 233 compared with the same period in 1926. Locomotives on order June 1 this year totaled 113 compared with 291 on the same date last year.

Locomotives in need of repair June 15 totaled 8,850 or 14.8 per cent of the number on line, 8.2 per cent in need of classified repairs and 6.6 per cent in need of running repairs. This was an increase of 429 locomotives compared with the number June 1. Serviceable locomotives in storage June 15 totaled 7,093 compared with 7,161 June 1.

The Sanitary District, Chicago, is inquiring for two 0-6-0 and two 0-4-0 type and the Illinois Central for 13 locomotive tenders. Orders placed with Baldwin since our June issue include those of the Saginaw Logging Co., for one 2-8-8-2; International Railways of Central America; four 2-8-2; Chicago, West Pullman & Southern, one switcher; and the Chicago & Illinois Midland, one 4-4-0. The Chicago & Illinois Midland also ordered two Mikados from Lima. The General Electric Co. received an order for 20 electric locomotives from the Cleveland Union Terminal Co.; the American Locomotive Co., eight 2-10-4 type from the Central Vermont; two switchers from the Aluminum Co. of America, one locomotive from the Vancouver Harbor Commission, two Pacific type from the Mexican Railway Co.; Pullman Car & Mfg. Corpn., and Westinghouse Electric & Mfg. Co., two oil-electric locomotives from the Pennsylvania. The Chesapeake & Ohio will build 10 locomotives in its own shops, and the Southern Pacific contemplates building nine tenders at its Houston shops.

Passenger Car Orders

Passenger car inquiries since our June issue include the following: Chesapeake & Ohio, six gas electric rail motor cars and five trailer cars; Union Pacific, four gas electric cars and eight trailer cars; Canadian National, three baggage and mail cars; Chicago Great Western, three baggage and mail cars; and the New York, Chicago & St. Louis, one business car. It is reported that the Montreal Tramways is planning approximately 25 new cars, the United Electric Railway, Providence, 50 cars; Hydro-Electric Railways, Toronto, eight interurban cars; and the Dallas Railway & Terminal Co., 15 Peter Witt street cars.

The Missouri-Kansas-Texas has ordered 19 baggage and mail cars from the American Car & Foundry Co.; the Columbus & Greenville, two gas-electric rail motor cars and two trailer cars from the J. G. Brill Co.; Pacific Electric Co., 10 street cars from the St. Lonis Car Co. The Pacific Electric is remodelling 18 Southern Pacific passenger coaches in its own shops, converting them into four 60-passenger motor coaches, eight 60-passenger trailer coaches and six 52-passenger combination passenger and baggage coaches.

Freight Car Orders

According to reports filed with the A. R. A. freight cars installed in service in the first five months of 1928 totaled 22 268 compared with 30,251 for the same period in 1927 and 42,300 for the corresponding period in 1926. Freight cars installed in May, this year, totaled 6,633 compared with 8,185 in May, 1927. The railroads had 20,712 freight cars on

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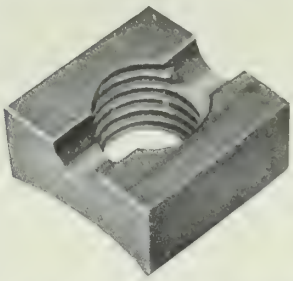

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order on June 1 compared with 23,949 on the same date last year and 44,628 on the same date in 1926.

The Seaboard Air Line is inquiring for 1000 box cars; South African Railways, 500 gondola cars; Rock Island, 250 composite gondola car bodies; Chicago & Eastern Illinois, 100 automobile cars; Pittsburgh & Shawmut, six caboose cars; Illinois Central, two dump cars; Cities Service Co., New York, four tank cars; Lehigh & New England, six caboose cars; Public Service Co. of Northern Illinois, one flat car; United States Navy Dept., Bureau of Aeronautics, one tank car; Commonwealth Edison Co., one transformer car; M. H. Treadwell & Co., one flat car; Hercules Cement Co., one cement car; Jacob Dold Packing Co., 10 underframes for refrigerator cars; Fruit Growers' Express, 150 underframes for refrigerator cars; Manila Railroad, 1000 box cars and six tank cars; Montevideo Post Administration, Montevideo, Uruguay, 20 open-top cars; United Porto Rican Sugar Co., San Juan, 22 freight cars.

Orders placed during the past month include the following: Argentine State Railways, 2200 freight cars divided between the American Car & Foundry Co. and the Middleton Car Co.; Pacific Electric Co., nine dump cars with the Differential Steel Car Co.; the Omaha, 200 flat cars and 250 stock cars with Pullman Car & Mfg. Corpn.; the Erie, 100 furniture cars with the Magor Car Corpn., 500 box cars with the Pressed Steel Car Co., and 400 automobile cars with the Standard Steel Car Co.; Ohio Colleries Co., 250 mine cars with the American Car & Foundry Co., Elkhorn Piney Coal Mining Co., 150 mine cars with the Enterprise Wheel & Mine Car Corpn.; Milcroft Coal Co., 50 mine cars with the Western Gas Construction Co.; Pennsylvania Coal Co., 25 mine car bodies with the American Car & Foundry Co.; the Milwaukee, two flat cars with the Standard Steel Car Co.; Missouri-Kansas-Texas, 10 dump cars with the Western Wheeled Scraper Co.; American Oil Co., two three-compartment tank cars with the General American Tank Car Corpn.; Southern Cotton Oil Co., 10 tank cars with the American Car & Foundry So., and 10 tank cars with the General American Tank Car Corpn.; Brown Co., Berlin, N. H., one glass-lined tank car with the General American Tank Car Corpn. The Cambria & Indiana has placed an order for repairs to 625 hopper cars with the Pressed Steel Car Co.; the Missouri Pacific will build 200 automobile cars in its DeSoto shops; the Southern Pacific, 50 gondola cars, 50 caboose cars and 500 flat cars in its shops; and Norfolk & Western will rebuild 500 gondola cars in its Roanoke shops.

Bus and Truck Orders

Orders and deliveries made since our June issue include the following: Union Pacific Stages Inc., Portland, Ore., two 27-passenger A. C. F. parlor coaches; Southern Pacific Motor Transport Co., Salem, Ore., one 27-passenger A. C. F. parlor coach; Boise Street Car Co., two 29-passenger Mack city type; Boston & Maine, one Mack chassis; Houston Electric Railway, four urban type Twin coaches; Chicago & West Towns Railway, Oak Park, five Mack buses; Cleveland Railway, one urban type Twin coach; Pacific Electric, two double deck Yellow coaches; Lordship Railway, Bridgeport, Conn., one Mack coach; Connecticut Co., New Haven, four Mack coaches; Milwaukee Electric Railway & Light Co., five urban type Twin coaches; County Transportation Co., New York, 12 Mack 29-passenger city type; Narragansett Pier RR., one type-Y Yellow parlor coach; Cumberland & Westernport Transit Co., Frostburg, Md., two White buses; United Electric Railway, Providence, one gas electric Twin coach; Wisconsin Power & Light Co., Madison, 10 30-passenger A.C.F. street car coaches; Worcester Consolidated Street Railway, 10 33-passenger Yellow coaches; Detroit Street Railways, 25 40-passenger A.C.F. buses.

Changes in Personnel

Executive and Operating

R. S. Marshall, assistant to the president of the Chesapeake & Ohio, with headquarters at Richmond, has been appointed vice president to succeed **W. B. Hall,** deceased. **C. S. Lake,** special assistant to the president, will succeed Mr. Marshall as assistant to the president. **W. C. Hull,** assistant to the vice president, with headquarters at Richmond, has been appointed assistant vice president and will report to the vice president in charge of traffic. **John C. Dice** has been named assistant to vice president and will report to the vice president and general counsel. **W. J. Conaty,** supervisor of valuation, has been appointed director of valuation, with headquarters at Richmond.

Day Mills, assistant inspector of transportation of the Kansas City Southern, has retired after 28 years' service. The position held by him has been abolished.

G. E. Bellrose, general superintendent of transportation, express department, Canadian National, with headquarters at Montreal, has been named assistant general manager of the express department.

G. R. Mabie has resumed his position of trainmaster of the Council Grove and Salina districts, central Kansas division of the Missouri Pacific, with headquarters at Council Grove, replacing **J. T. L. Brooks,** acting trainmaster.

J. D. McMillan, superintendent of the central region of the Canadian National, with headquarters at Belleville, Ont., has retired after 52 years' service.

A. B. Burpee has been appointed transportation assistant, Alberta district of the Canadian Pacific, with headquarters at Calgary, Alta.

The Canadian National announces that **M. D. Thompson,** superintendent of transportation of the Alberta district, with headquarters at Edmonton, Alta., has been transferred to the Saskatchewan district, with headquarters at Saskatoon, Sask.

The Pennsylvania announces that important changes have been made to strengthen and increase the staff in Pittsburgh and the Pittsburgh district, where a large proportion of the traffic originates. There are to be two vice presidents in Pittsburgh, **E. T. Whiter,** regional vice president in charge of the Central region, having been promoted to the new office. He will attend to relations between the Pennsylvania and the industries served by the lines in that territory. Mr. Whiter will be succeeded as regional vice president at Pittsburgh by **E. W. Smith,** general manager of the eastern region, with headquarters at Philadelphia. Mr. Smith will be succeeded as general manager of the eastern region by **R. K. Rochester,** general manager of the Long Island with headquarters at New York. **J. F. Patterson,** general superintendent of the eastern Ohio division of the Pennsylvania, with headquarters at Pittsburgh, will succeed Mr. Rochester as general manager of the Long Island. Mr. Patterson will be succeeded by **N. B. Pitcairn,** superintendent of the New York division, who will in turn be succeeded by **D. Y. Geddes,** superintendent of the Panhandle division. **T. C. Herbert,** superintendent of the Monongahela division, will succeed Mr. Geddes as superintendent of the Panhandle division. Mr. Herbert

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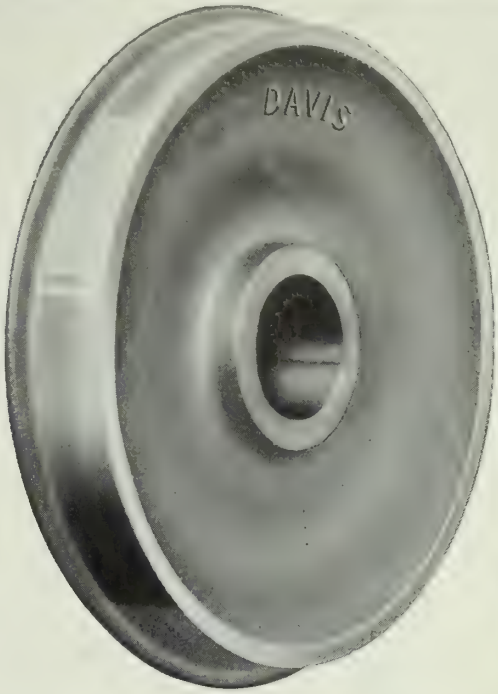

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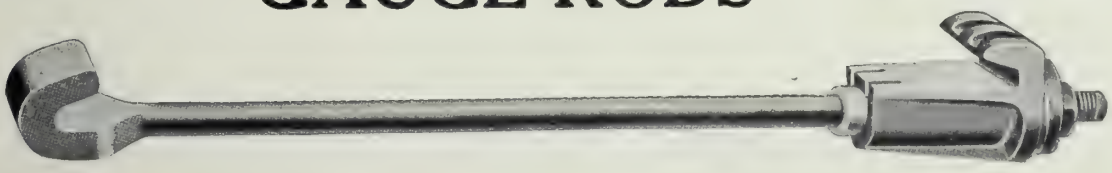

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will be succeeded in the Monongahela division by **H. T. Frushour,** division engineer, Cleveland division. Changes in the traffic department at Philadelphia have been announced: **J. F. Deasy,** chief of freight transportation, has been appointed assistant vice president in charge of operation and will be succeeded as chief of freight transportation by **J. R.** Downes, superintendent of freight transportation, central region, with headquarters at Pittsburgh. Mr. Downes will be succeeded by **W. R. Triem,** superintendent of the Buffalo division with headquarters at Buffalo. **E. E. Ernest,** freight trainmaster of the Maryland division, will succeed Mr. Triem. At Chicago **J. E. Weller,** traffic manager of the western region has been appointed to the newly created position of assistant vice president in charge of traffic. **S. T. Stackpole,** general agent at Detroit, succeeds Mr. Weller as traffic manager, and will be succeeded as general agent at Detroit by **Col. Walter S. Franklin.** Changes in the traffic department at Pittsburgh: **John J. Koch,** traffic manager, has been appointed assistant to the general traffic manager succeeding **William Hodgdon,** deceased. **H. C. Oliver,** freight traffic manager at Pittsburgh, will succeed Mr. Koch as traffic manager of the central region. **W. R. Cox,** coal traffic manager, central region, will succeed Mr. Oliver as freight traffic manager and will be succeeded by **S. A. Latimer,** coal freight agent at Pittsburgh. **A. S. Jennings,** district freight agent at Cleveland has been appointed coal freight agent at Pittsburgh. The position of freight traffic manager has been created at New York and **F. X. Quinn,** general freight agent, has been named to fill it. **J. R. Cross,** division freight agent at Buffalo has been appointed to the newly created position of assistant general freight agent.

R. S. Marshall, assistant to the president of the C. & O. and the Hocking Valley, with headquarters at Richmond, has been appointed vice president. **C. S. Lake,** special assistant to the president has been appointed assistant to the president to succeed Mr. Marshall. **W. C. Hull,** assistant to the vice president in charge of traffic, has been named assistant vice president to report to the vice president of traffic. **John C. Dice,** assistant to vice president will report to Vice President and General Counsel, H. Fitzpatrick. **W. J. Conaty,** supervisor of valuation, has been appointed director of valuation in charge of valuation matters. **R. P. Eubank,** general real estate agent will report to the president.

W. E. Coman, assistant to the president of the Northern Pacific, has been appointed vice president with headquarters at Seattle, to succeed **George T. Reid** who died November 30. Mr. Coman began railroad work when he was 16 as a clerk on the Burlington at Kansas City, soon afterward entering the service of the Union Pacific at Portland. All of his time since then has been devoted to railroad work with the exception of the intervals spent as vice president and general manager of the Northwestern Electric Co. at Portland, and as vice president and general manager of the Washington Water Power Co. at Spokane. He was appointed assistant to the president last January 1.

L. U. Morris, division superintendent of the Southern Pacific, with headquarters at El Paso, has been appointed superintendent, Los Angeles division, with headquarters at Los Angeles, to succeed **G. E. Gaylord** who has been transferred as his own request to be superintendent, Stockton division, headquarters Stockton. **William Wilson,** superintendent at Stockton, has been appointed superintendent Tucson division, headquarters at Tucson. **H. S. Fairbank,** superintendent at Tucson, has been transferred to the Rio Grande division, headquarters at El Paso, to succeed Mr. Morris. **C. M. Murphy,** division superintendent with headquarters at El Paso has been appointed superintendent, San Joaquin division, headquarters at Bakersfield, vice **A. F. Bowles, deceased.** Mr. Murphy will be succeeded at El Paso by **W. B. Kirkland,** assistant superintendent at El Paso. **J. P. Nash,** trainmaster, New Mexico division, headquarters at Tucumcari, has been appointed assistant superintendent Rio Grande division, headquarters at El Paso to succeed Mr. Kirkland. Mr. Nash will be succeeded at Tucumcari by **J. W. Corbett.**

W. E. Coman

Financial & Legal

Robert Brennan, chief trial attorney on the Coast Lines for the Santa Fe since 1915, has been appointed general attorney and placed at the head of the Santa Fe legal department in California.

John F. Dinkey, auditor and treasurer of the Buffalo, Rochester & Pittsburgh, retired June 30 after 47 years' service. **Arthur C. Durfee,** assistant treasurer, will succeed Mr. Dinkey as treasurer and **Axel L. Genzmer,** assistant auditor, will succeed him as auditor.

J. L. Ferris, auditor of passenger accounts of the New York Central, with headquarters at New York, has retired after 49 years' service. **R. C. Bromm,** assistant auditor of passenger accounts, will succeed Mr. Ferris and will be succeeded by **J. J. Russell.**

A. J. Messersmith has been appointed auditor of the Chicago, Rock Island & Gulf, with headquarters at Fort Worth.

L. P. Wohlfeil, acting general auditor of the Green Bay & Western, has been named general auditor with headquarters at Green Bay, Wis.

Purchases and Stores

Russell J. Stackhouse, general storekeeper of the Reading, retired June 1 after more than 42 years service with that company. **William H. Morris,** assistant general storekeeper, headquarters at Reading, will succeed Mr. Stackhouse as general storekeeper with headquarters at the same point. **William N. Endy,** storekeeper at Reading storehouse, has been named assistant to the general storekeeper.

John Ball, assistant general purchasing agent of the Chicago & North Western, is to perform similar duties for the Omaha with headquarters as before in Chicago.

A. E. Walters, division storekeeper at Memphis of the Illinois Central, has resigned and will be succeeded by **G. D. Tombs.**

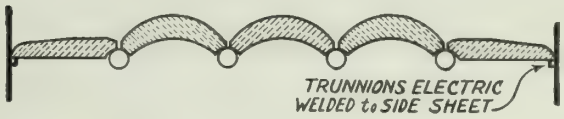
G. E. Bacheller has been appointed purchasing agent of the Intermountain Railway with headquarters at Boise, Idaho.

D. B. Rivers, district storekeeper of the Milwaukee, with headquarters at Miles City, Mont., has been transferred to Minneapolis to succeed **G. T. Richards,** resigned. Mr. Rivers will be succeeded at Miles City by **J. V. Anderson,** assistant district storekeeper at Minneapolis.

Traffic

J. E. Carter, assistant general freight and passenger agent of the Southern Pacific at Lake Charles, La., has been appointed assistant general freight agent, Houston. **A. J. Morriss** has been ap-

Economy Baffle Walls
for
Steam Locomotives



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NEW YORK CHICAGO

pointed general agent, Southern Pacific Steamship Lines.

Howard H. Ellsworth, agent of the Northern Pacific at Fargo, N. D., has been appointed assistant general freight agent, with headquarters at St. Paul to succeed **Lynn Challoner** who was propromoted to assistant general freight and passenger agent in Montana with headquarters at Helena.

R. C. Jamison, general agent of the Chicago Great Western, with headquarters at Tulsa, has been appointed general agent at New Orleans vice **L. N. St. John,** resigned. Mr. Jamison will be succeeded at Tulsa by **M. O. Culton.**

John M. Scott, assistant passenger traffic manager of the Southern Pacific with headquarters at Portland, Ore., has resigned and will be succeeded by **J. A. Ormandy,** general passenger agent. **B. C. Taylor,** general agent at Seattle, has been appointed general passenger agent at Portland to succeed Mr. Ormandy.

J. T. Driscoll has been appointed traveling freight agent of the Kansas City Southern with headquarters at New Orleans.

C. A. Maull, assistant general freight agent of the Atlantic Coast Line at Orlando, Fla., has been transferred in the same capacity to Miami, and will be succeeded at Orlando by **W. S. Evans.**

The New York Central announces that **B. J. Torbron,** general freight agent of the Ohio Central lines, with headquarters at Chicago, has been appointed general coal and ore agent, with headquarters at Cleveland. **J. R. O'Malia,** general agent in the coal department at Cleveland, has been promoted to assistant general coal and ore agent with headquarters at the same point. **W. J. Keller,** assistant general freight agent at Chicago, will succeed Mr. Torbron as general freight agent and **M. S. O'Connor,** chief of the tariff bureau at Chicago, will succeed Mr. Keller as assistant general freight agent. **W. T. Tannehill** has been named chief of the tariff bureau to succeed Mr. O'Connor.

Chester M. Biggs, industrial agent in the freight traffic department of the Southern Pacific at Portland, Ore., has been appointed general agent at Seattle.

The Big Four announces that **J. E. Anderson,** assistant general freight agent, with headquarters at Cleveland, has been appointed general freight agent in charge of solicitation and service with headquarters at Cincinnati to succeed **George Krause, Jr.,** deceased. **B. R. Brenan** has been appointed assistant general freight agent at Cleveland to succeed Mr. Anderson. **W. B. Ferguson,** assistant general freight agent, with headquarters at Cincinnati, has been appointed general freight agent in charge of rates, and rules and regulations governing the handling of freight traffic and tariff publication, with headquarters as before.

R. H. Eberly, assistant general freight agent of the Seaboard Air Line at Norfolk has been named senior assistant general freight agent with headquarters as before. **O. C. Abrams** has been appointed assistant general freight agent to succeed Mr. Eberly.

F. A. Cleveland, assistant general freight agent of the Northern Pacific, has been appointed general freight agent with headquarters as before in Seattle.

D. J. McGanney, assistant general freight agent of the Southern Pacific with headquarters at San Francisco, has been appointed assistant to the freight traffic manager. **A. I. Hoskins** has been promoted to assistant general agent.

Joseph M. Simon, assistant general freight agent of the Mobile & Ohio, has been appointed general freight agent with headquarters at St. Louis, vice **W. H. Grumley,** resigned. **R. A. Chadwick,** commerce agent, has been appointed assistant general freight agent to succeed Mr. Simon, and will be succeeded as commerce agent by **J. I. Bonner. E. Wifler** has been appointed assistant general freight agent to succeed Mr. Bonner.

H. E. Shepard, commerce agent of the Atlantic Coast Line, at Mulberry, Fla., has been named general agent with headquarters at Jacksonville, and will be succeeded at Mulberry by **A. R. Savage.**

Leave of absence has been granted to **G. W. Martin,** general agent of the Rock Island at Denver because of illness. He will be succeeded by **F. H. Faus,** general agent at Colorado Springs.

The Abilene & Southern has given **W. R. Lence,** general manager, the additional title of general freight and passenger agent, with headquarters as before in Abilene, Tex.

T. W. Jacobs has been appointed European traffic manager of the Baltimore & Ohio, with headquarters in London, England. **J. C. Kimes,** assistant general freight agent with headquarters at Cleveland, has been named general freight agent with headquarters at Chicago. Mr. Kimes will be succeeded by **C. F. Farmer,** division freight agent at Youngstown, O.

E. B. Clark, general agent for the Great Northern at Detroit, has been appointed commercial agent at the same point and will be succeeded as general agent by **H. G. Schuette,** assistant general agent at Detroit.

Mechanical

J. E. Brower, master mechanic, Conemaugh division of the Pennsylvania, with headquarters at Pittsburgh, has been appointed master mechanic at Ft. Wayne, vice **M. R. Reed,** promoted.

The Norfolk & Western announces that **R. G. Henley,** assistant to the superintendent of motive power, with headquarters at Roanoke, has been appointed superintendent of motive power to succeed Alexander Kearney, deceased. Mr. Henley will be succeeded as assistant to the superintendent of motive power by **J. J. Barry,** general master mechanic at Roanoke. **O. F. Hark,** master mechanic at Portsmouth, O., has been named to succeed J. J. Barry, and will in turn be succeeded by **J. L. Barry,** master mechanic at Bluefield, W. Va. **T. L. Brown,** general foreman at Lambert Point, Va., will succeed J. L. Barry.

Civil

A. O. Wilson, engineer on the North Florida division, Seaboard Air Line, with headquarters at Jacksonville, has been transferred to Savannah in the same capacity. He will be succeeded at Jacksonville by **O. F. McNairy,** now at Savannah.

H. W. Legro, acting supervisor of bridges and buildings of the Boston & Maine, has been appointed industrial engineer with headquarters at Boston.

H. A. Hatch, division engineer of the Santa Fe, with headquarters at Chanute, Kan., has been assigned to other duties in the office of the chief engineer of the eastern lines at Topeka. He will be succeeded as division engineer by **D. M. Rankin,** office engineer at Chanute. **H. M. Swope,** acting division engineer with headquarters at Emporia, has been appointed division engineer with headquarters as before.

W. J. Burton, assistant valuation engineer of the Missouri Pacific, with headquarters at St. Louis, has been appointed assistant to the chief engineer, with headquarters as before.

J. J. Taylor, superintendent of bridges and buildings of the Kansas City Southern, with headquarters at Texarkana, has retired after 26 years' service in the engineering department of that road.

H. E. Beard, assistant chief engineer of the Orient, with headquarters at Wichita, has been appointed acting chief engineer with the same headquarters.

Z. L. Mobley, acting roadmaster of the Norfolk division of the Southern, has been transferred to the Washington division as roadmaster with headquarters at Alexandria, Va. **H. H. Stine** has been appointed roadmaster, Norfolk division, to succeed Mr. Mobley.

F. L. Guy, division engineer, Rio Grande division, Southern Pacific, has been transferred to the coast division, headquarters at San Francisco, to succeed **E. C. Morrison,** assigned to other duties. **H. E. Stansbury** will succeed Mr. Guy in the Rio Grande division,

with headquarters at El Paso, and will be succeeded by **J. B. Dawson** to the position of division engineer, New Mexico division, headquarters at El Paso.

Obituary

Howard Elliott, former president of the Northern Pacific, died at the home of his daughter in Dennis, Mass., July 8, of heart disease. He was 68 years old.

Twenty-three years after Mr. Elliott, still a student at Harvard, started railroading as a rodman in a surveying crew, he had climbed to the presidency of the Northern Pacific. He began his career with the Burlington at the age of 20, and had attained the second vice presidency, in charge of maintenance, operation and construction, when James J. Hill, the Northwest's "empire builder," brought him, in 1903, to the president's chair of the Northern Pacific.

That post he held for ten years. When the New Haven needed a "doctor" for its physical and financial ills its directors called Elliott in and made him president. Public confidence in the New Haven was soon re-established, its financial crisis was averted, and credit for the accomplishment was given largely to Elliott.

A nervous breakdown compelled his resignation in 1917, but he took an active part in war time administration of the railroads, and returned to the Northern Pacific in 1920 as chairman of the board. He was a director in several other companies.

Howard Elliott

H. E. Van Housen, who retired as superintendent of the Los Angeles & Salt Lake, with headquarters at Salt Lake City in 1921, died June 16 at his home in San Gabriel, Cal., aged 76. He had been with the Union Pacific for 49 years.

F. H. Parke, general engineer of the Westinghouse Air Brake Co., died June 16 at Wilmerding, Pa.

Frank E. Andrews, commerce attorney of the Santa Fe, died in Chicago, June 21.

Claude George Burnham, executive vice president of the Burlington and the Colorado & Southern died June 22 at his home at Chicago aged 47. Mr. Burnham had been with the Burlington and the Colorado & Southern for 26 years and had been exective vice president of those roads since 1919. When he was appointed to the vice presidency he was said to be the youngest man in the country holding that office.

J. B. Berry, formerly chief engineer of the Union Pacific died at his home at Three Lakes, Wis., June 22, aged 76.

J. C. Murchison, executive general agent of the Atlantic Coast Line, died June 11 at Orlando, Fla.

Louis J. Reed, who is said to have built the first automobile body, died June 17 at his home in Peru, Ind., aged 81. Mr. Reed was associated with the late Elwood Haynes in Kokomo, between 1889 and 1896. He is said to have built the body of the first Haynes car, which now is in the Smithsonian Institution at Washington.

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O. F. JORDAN COMPANY
WALTER J. RILEY, PRESIDENT
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W. K. Edgar, first vice president of the Edgar Steel Seal & Mfg. Co., died at Lawrence, Kan., April 26.

Edgar Freeman, assistant general treasurer of the New York Central, died at his home in New York, May 25, aged 66.

William Hodgdon, assistant to the general traffic manager of the Pennsylvania, with headquarters at Chicago, died May 29 in that city, aged 69, after nearly 49 years in railroad work.

Joseph W. Walker, who was recently appointed assistant to the general manager of the Coast Lines of the Santa Fe, died at his home in Fresno, Cal., June 7.

M. Larson, chief engineer of the railroad commission of Wisconsin, died at Madison, June 9.

Supply Trade Notes

The **Westinghouse Union Battery Co.,** a subsidiary of the Westinghouse Air Brake Co., has been sold and a new company, to be headed by **J. L. Rupp,** who has been in executive charge of the business, is being formed to take over the equipment, inventory and good will. Operations will be continued at the plant at Swissvale.

W. J. Walsh, formerly vice president of the Galena Signal Oil Co., has been appointed special representative of the **Standard Oil Co. of Indiana,** with headquarters at Chicago.

Frank J. Johnson, the senior partner and one of the founders of the **American Hoist & Derrick Co.,** has bought the partnership interest of **W. O. Washburn.** The business will be continued under the same name with F. J. Johnson as president and treasurer, **Howard S. Johnson,** vice president in charge of sales, and **Frederic Crosby** as vice president in charge of production.

The **Carnegie Steel Co.,** Pittsburgh, announces that **L. G. Bihler,** traffic manager, has been appointed an assistant to the president and general traffic manager; **W. S. Guy,** assistant traffic manager, has been appointed traffic manager, and **G. W. Seaman** and **C. W. Trust** have been appointed assistant traffic managers.

The **O'Fallon Co.,** Telephone Bldg., St. Louis, has been appointed southwestern railroad representative of the **Prime Mfg. Co.,** Milwaukee.

The **Pyle-National Co.,** Chicago, announces the opening of three new offices; one in the Oliver Bldg., Pittsburgh, with **Thomas P. McGinnis** in charge; one in the Little Bldg., Boston, with **Carl S. Geis** in charge, and one in the Marine Bank Bldg., Houston, with **Alexander E. Johnson** in charge.

The **Gold Car Heating & Lighting Co.,** Brooklyn, announces that **Edward E. Gold,** president, has been elected chairman of the board; **Frank W. Dearborn** has been elected president to succeed Mr. Gold, and **Franklin H. Smith** has been elected assistant treasurer.

A. N. Wilsie

D. A. Merriman, general manager of sales of the **American Steel & Wire Co.,** Chicago, has been appointed vice president and general manager of sales. **H. B. Maguire,** assistant manager of the sales office at Detroit sales office, has been named assistant to the vice president and general manager of sales.

A. N. Willsie, for many years western sales manager of the Locomotive Stoker Co., has been appointed in charge of railway sales of the **Gunite Corpn.,** Rockford, Ill. This corporation, a subsidiary of Rockford Malleable Iron Works, was formed recently to handle the newly developed graphitic steel products.

Charles A. Terry, vice president of the **Westinghouse Electric & Mfg. Co.,** has been elected a director to succeed General Guy E. Tripp, deceased.

The **Oliver Iron & Steel Corpn.** of Pittsburgh, announces that **O. H. Davidson,** president of the O. H. Davidson Equip. Co., Denver, has been appointed district manager of the Rocky Mountain territory to represent the bolt, nut, rivet and pole line departments.

Blaine S. Smith, general sales manager of the **Universal Portland Cement Co.,** has resigned to become president of the **Pennsylvania Dixie Cement Corpn.,** and will be succeeded in the Universal Portland Cement Co., by **F. L. Stone,** assistant general sales manager.

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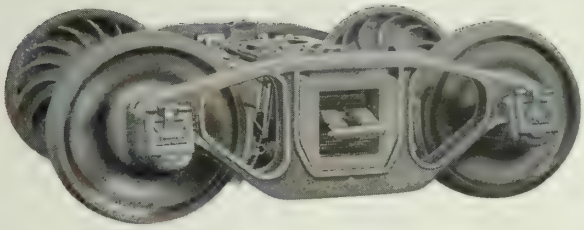

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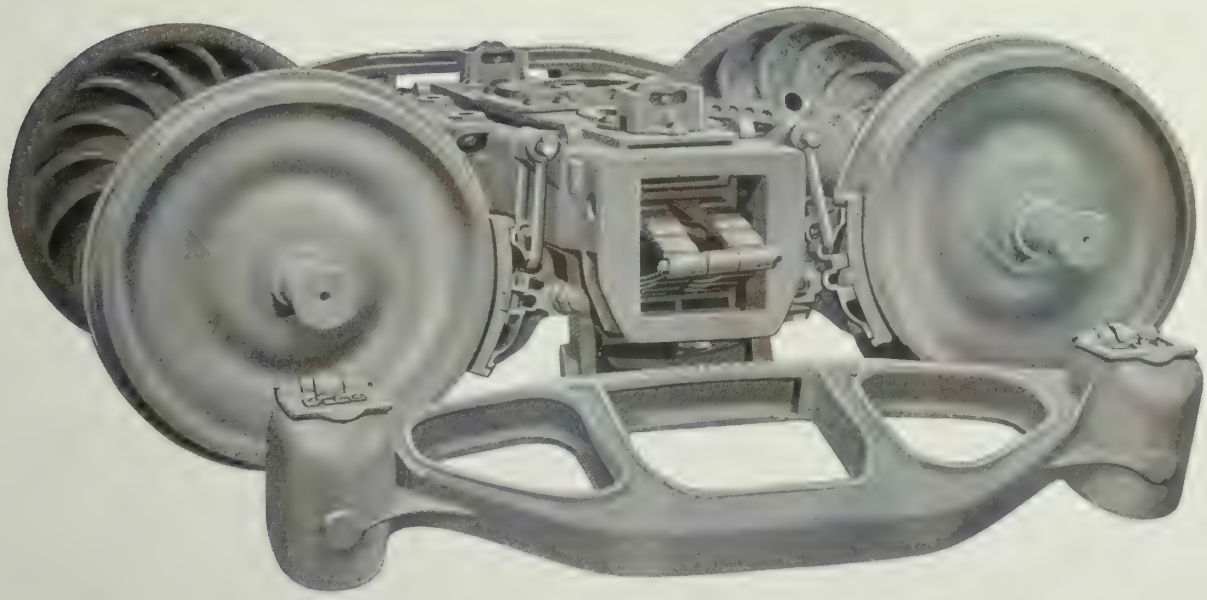

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Transportation

The Monthly Magazine of the Transportation Industry

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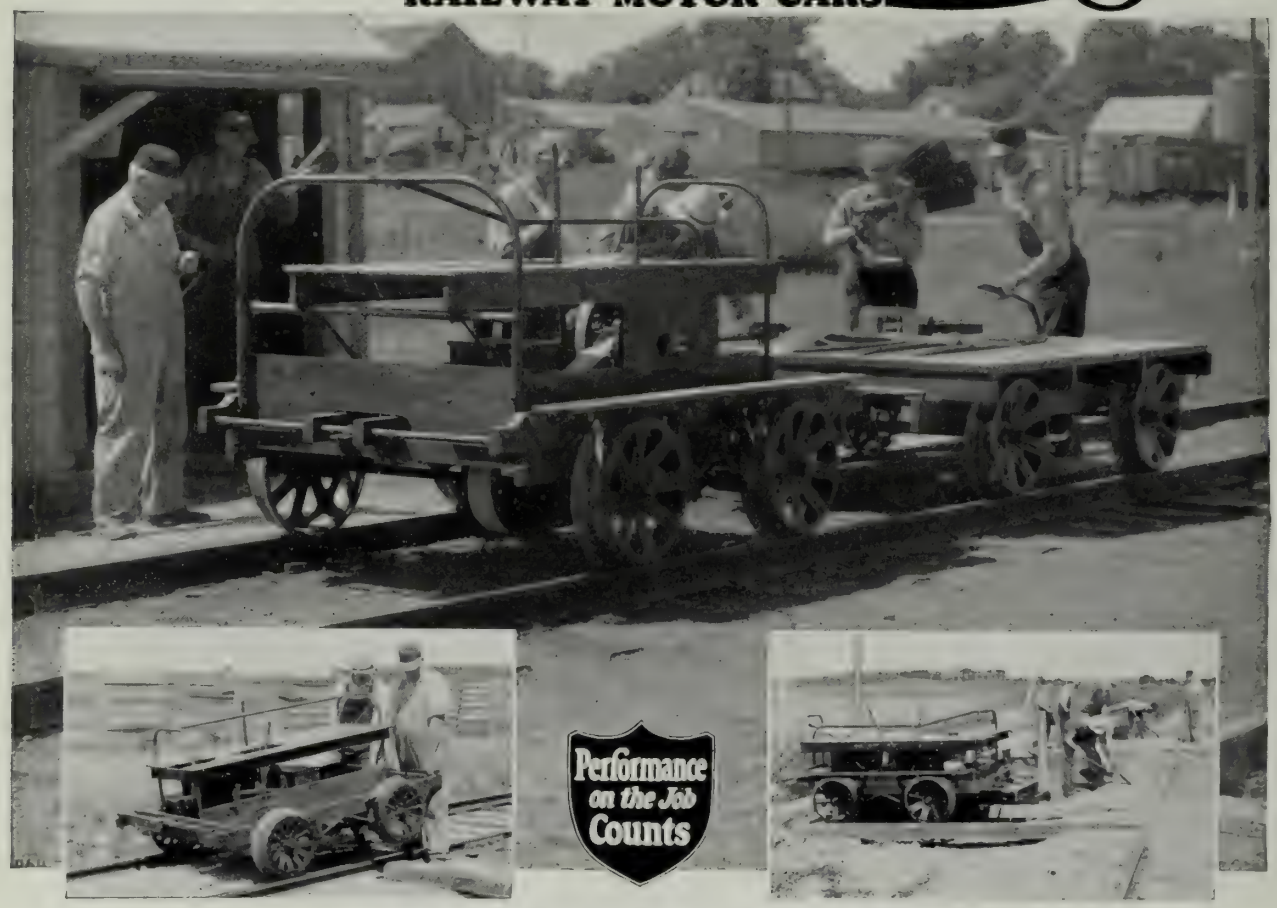
Vol. III August 1928 No. 2

Fairmont AND Mudge
RAILWAY MOTOR CARS



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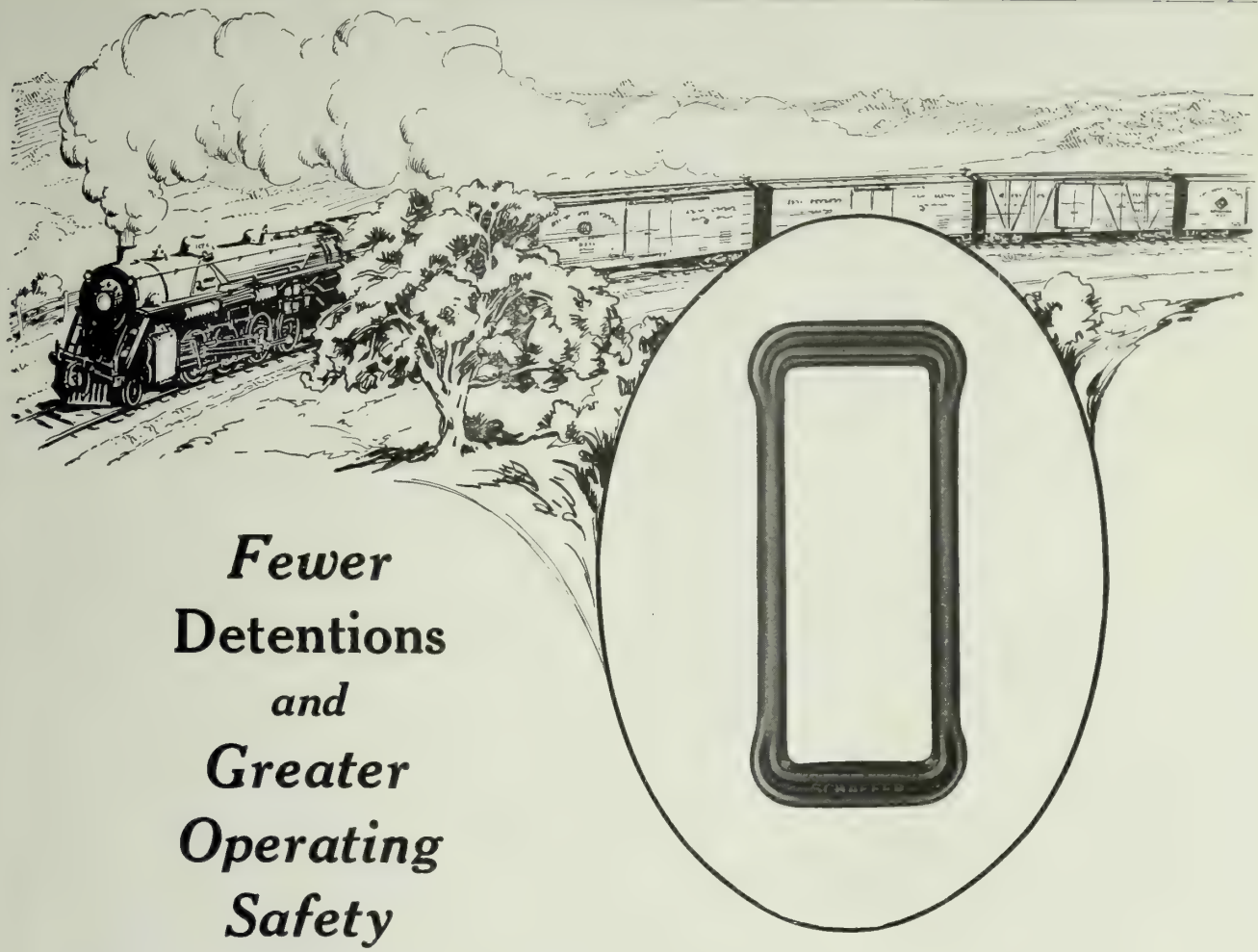

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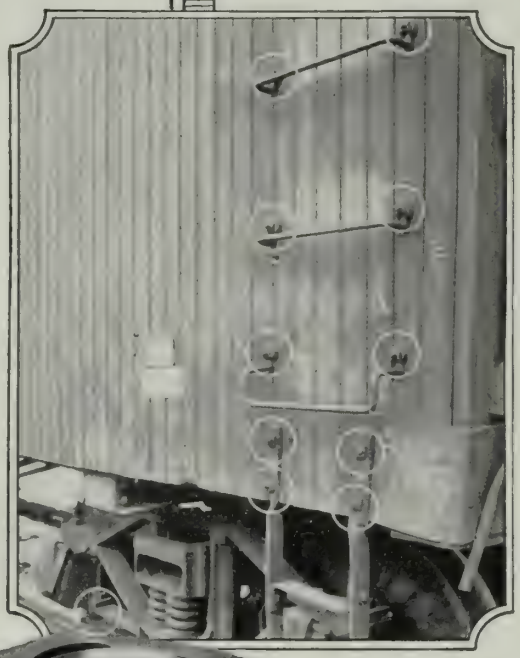
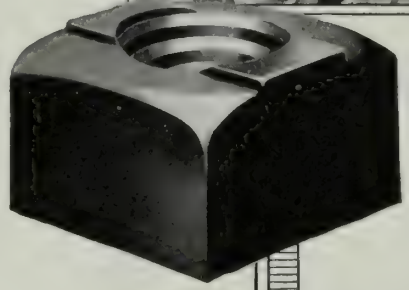


Grip Nuts Held



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Transportation

The Monthly Magazine of the Transportation Industry

AUGUST, 1928

VOLUME THREE NUMBER TWO

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SAN FRANCISCO IN THREE HOURS, FIFTY DOLLARS, *Fred Goodcell*

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LITTLE STORIES ABOUT BIG MEN,

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AMONG THE MEN WHO DO THE WORK,

THIRTY-TWO MILLIONS FOR A TERMINAL, *J. A. Sprague*

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P-287

When the Combing Train Goes By

Fitting the Line to Traffic

By
Alex. Whilldin

Clearance Engr.,
Pennsylvania Railroad

The Clearance Special About to Enter a Tunnel, the Engineers Watching Every Projecting Stick.

SINCE his origin, man has been concerned with the subject of clearance. As he increased in intelligence and grew in numbers the familiar cry of "Low Bridge" greeted him on the old canal boats, followed by a general ducking of heads on the upper deck. When railroads came along it was necessary again to see to it that engines and cars should have enough space to pass through cuts, through tunnels and over bridges. In the present day of large locomotives and cars, shipments of unusual objects of traffic, it is more than ever necessary to see to it that everything fits properly.

Passengers of today, seated in coach or parlor car, on any of the Pennsylvania Railroad trains wonder, no doubt, just how the railroad men computed the distance between the car and the overhead viaduct or bridge under which the train has passed, the pillars of which seemed so close to the windows. Again, passing a freight yard, they notice in a freight train, a flat car bearing a huge transformer or girder that towers over the roofs of the box cars on either side of it. He makes a mental note that it must be some problem to get that through the tunnels or past his own train in safety, and finally concludes that these railroad boys know their clearances.

His safety is an accepted matter with him and so he promptly proceeds to forget all about the problem, but the fact remains that railroad men had planned these clearances, both for the bridge and the shipment on the flat car. His wonderment is also shared by hundreds of other men—employes of the railroad on which he is traveling—men who are not directly concerned with the operating problems.

This clearance problem on the Pennsylvania Railroad, has largely been solved by a special device which has covered every mile of running track on the P. R. R., and has a mileage of over 50,000 miles to its credit.

Say "clearance car" to the general traveling public and the term does not express much, yet it is vitally concerned in the business of getting them through to destination—"Safely, Swiftly, and On Time." To the railroad transportation world, the term stands for both safety and increased business; safety in the knowledge that no car will be used in a train that does not have the full margin of safety in passing any overhead or side objects along the right of way, and increased business in enabling the railroad to offer to shippers the last word in just how large a piece of machinery may be constructed, loaded on a flat car, and safely moved by trains between any two points.

During the World War this detailed information as to clearance was constantly referred to in order that boxed airplanes, mammoth guns, and even boats of considerable size shipped from inland points to the seaboard, and between points on the coast, could be moved with safety. The Pennsylvania Railroad found itself amply prepared for this emergency. As early as 1908, the writer, believing that the future would see larger cars, larger locomotives, and larger shipments on open cars, began the work of more carefully and accurately collecting clearance data, and had constructed in the P. R. R. Altoona shops a specially designed car to be used for one purpose only; that of measuring accurately the distance from the track to every object, whether the object be overhead or alongside the track used by moving trains.

Each part of the new car was considered in detail and constructed on original lines, even the trucks being of a special pattern

A 65,000 lb. Strut That Must Have a Clear Passage.

entirely different from those in general use on the Pennsylvania Railroad. The car itself was built of steel parts with the templet, the frame from which all measurements were to be taken, being a rigid part of the car and made from a steel I beam erected immediately over the forward trucks.

With the delivery of the car a start was made at Philadelphia. The clearance train ran as a special, consisting of a locomotive, the clearance car, and a business car. It proceeded to New York, measuring the distance from the track to every overhead bridge, tunnel, station shelter, intertrack fence, bridge abutment, girder bridge, overhead wire — in fact everything that was higher than three inches above the top of the rail and up to 21 feet, six inches above the tracks on all four tracks between the two terminals. That particular trip culminated in making complete measurements of the two tunnels under the Hudson River, the four under the East River and all the side and overhead structures in Pennsylvania Station, New York, on every track in the station.

The clearance car has always held to its motto—"Show Me," for while a contractor constructs according to his plans, the clearance car always follows up when the work is completed to measure exactly the location of a bridge or building with respect to the track. In this connection interesting trips have been made in Washington, Baltimore, Chicago, Columbus, Philadelphia, Pittsburgh, Cleveland—in fact, wherever new work or improvements have or are being made. The car has also gone to Boston, Providence, Springfield, Richmond, Norfolk, Atlanta and Birmingham, for the entire outfit has at times been leased to other railroads to check their clearance.

Mile after mile, with months of continuous train running, the entire Pennsylvania Railroad System was covered until the mileage covered mounted to over 50,000 miles and every mile of main running track had been combed and the extreme end of every branch had been reached. At present over 2500 special cases are handled safely each month by making use of information developed by the clearance car in its work on the system.

After a few days trial of this new, unusual car, it was found that three men only were enough to operate it as compared with seven on a temporary car in previous years. In order to have the data collected made available as soon as possible, the field notes were sent to a corps of draughtsmen in the Philadelphia offices, and these men plotted to scale the outline of every structure or object measured, combining on one sheet or

Mr. Whilldin, the Author, in Conference With Clearance Force Before the Special Starts on Its Important Work.

drawing, everything that had been measured between one junction joint and the next junction joint. A separate sheet was prepared for each track if there were two or more tracks in the territory covered.

In this way, and as clearances were completed all over the railroad, a complete office record was compiled, so arranged that it was possible, when necessary, to tell over what route, and on which track, there was the greatest or least distance from a car to any structure it must pass. Obviously then, if a manufacturer wishes to bid on some extremely large piece of machinery to be built at a plant in Pittsburgh, or elsewhere, for shipment to New York, the clearance bureau is able to advise him the extreme height and greatest width which may be safely moved between these, or any two points.

It is an interesting fact respecting larger shipments and clearance that the Pennsylvania Railroad recently placed in service cars having their floors depressed between the trucks for the one purpose of offering the manufacturer the opportunity to construct and ship a higher shipment than could be moved if loaded on the ordinary flat car in common use.

The consideration that is given any business offered is perhaps best illustrated in the fact that should two cars, in a total of five cars offered, be too large on account of their lading for movement via normal routes, the matter is referred to and checked over by the clearance bureau, which endeavors to set up a detour route for the two cars. This is accomplished by checking their dimensions against the clearance diagrams on file. The acceptance of the five cars is authorized, three of the cars to move via the normal route and two by detour.

Let us suppose that the shipment is traveling from Philadelphia to Chicago. The three cars moving the normal route would go by the way of Pittsburgh. The two cars that are detoured on account of the dimensions of the shipment, however, are ordered moved via Erie (a more open route), and then to come back to the normal route at a point far west of Pittsburgh. The two cars carry a card showing exactly the route they are to take, stating at what points the cars must be moved carefully on account of close clearance. The instruction cards, which are attached to both sides of the car, often specify particular tracks that must be used. Additionally, the revenue billing bears a sticker reading "Excessive Dimensions," which serves as information for the train crews handling the car. All of this is done to insure the ultimate in safety for all the persons and elements concerned. Briefly, the foregoing explains what is done in connection with the large shipment which the traveler observed from his car window.

In order that other departments of the railroad and also the public shall have this clearance information in usable form, there is compiled from the drawing or plotted sheets a tabulation of figures giving the data for through or local routes, and also between each junction point. The purpose for this can be easily recognized, as most railroad men and large shippers know that there is a normal route for everything that moves over a railroad. The compilation tells, in figures, the greatest width and height that can be safely moved from point to point, the tabulation beginning with six inches above the top of the rail and stating a permitted width for every three inches of height to 20 feet high.

These tabulations, which are used by the transportation department, and are also given to the

If This Gear Wheel Strikes the Side or Top of a Tunnel There'll Be Trouble.

public in a national quarterly publication devoted entirely to clearance, are compiled, allowing for a safe margin between the figures published and the actual distance to the object represented by the figures. This safe margin is the "clearance."

The results of the operation of the clearance car have always been constructive. Divisions on which there were points which might have been considered a risk to safe operation were so advised, and the object in question set back or possibly removed. Many divisions, upon receipt of copies of the plotting of the objects in their territory, began a systematic campaign of improving such conditions. Again, as absolute reliance was placed on the plots and tabulations, it was a simple matter to measure a car or load in question, compare its dimensions with the clearance records, and immediately accept it for movement with the knowledge that it had safe clearance. If this was in any way questionable, the dimensions were referred to the clearance bureau to work out a detour route.

Increasing business brought the need for larger cars and locomotives and with the absolute knowledge of all the close points on the system, the motive power department, by referring to the clearance plots, began to design equipment to take advantage of the maximum size that would move within the safety margin, or clearance. With the divisions and officers in charge of new construction constantly bettering conditions, larger cars and locomotives, more powerful, have been built, all entirely within the safe margin.

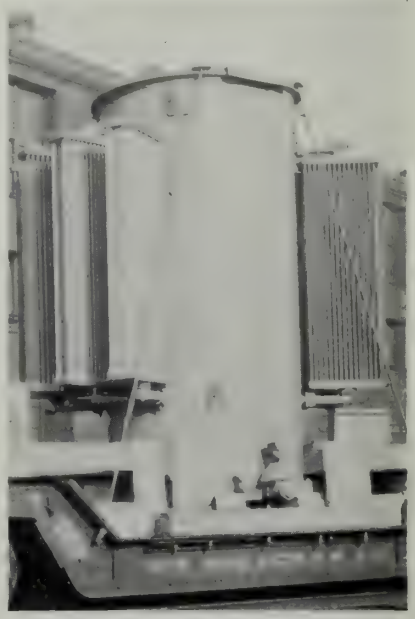
The work of getting exact measurements from the track to every object is interesting railroading. By carefully noting the illustrations accompanying this article the reader may obtain a good idea of the operation as explained in what follows. The photographs were made on the Schuylkill division.

The special train is made up with a locomotive, the clearance car, and a business car. Before moving the clearance car is "dressed for work." The templet, that steel I beam, exactly 10 feet wide which is painted white and marked to indicate every three inches of height from the rail up to 12 feet high, has on its outside face small sockets into which fit a brass angle piece. This angle carries a stick or feeler 24 inches long. By the use of a small bolt and wing nut, holding the stick to the angle, the stick is kept under tension and can be moved so that it extends outward from the car its full 24 inches or can be swung backward until it is parallel to the side of the car.

One of these movable sticks is placed in a socket every six inches from the lowest point of the templet up to 12 feet high. At this height, due to the smallest tunnels, it was necessary to shape the templet at an angle up to the 15 foot height, this height being about the extreme which may be moved over the Pennsylvania Railroad and many other railroad systems without resorting to special detour movements. An interesting fact in this connection is that the largest passenger cars, Pullmans, and express cars are within a fraction of an inch of being 10 feet wide and slightly less than 15 feet high over their ventilators, while locomotives seldom exceed this 15 feet height by more than an inch over the stack, steam dome, bell and cab roof. This accounts for the short stack and general massive appearance of a locomotive, even the whistle often being placed on the side to keep it below this height.

The reader will note that sticks have been placed on the sides of the templet from the base up to the sloping portion of the templet. On this sloping portion of the templet and across its top are similar sockets, spaced six inches apart, into which are also placed angles with their projecting sticks, 79 sticks up the sides and across the top of the templet or measuring frame, giving the appearance of a huge comb.

Many structures, necessary to measure, were found to be just beyond the limits of the main templet with its 24-inch projecting sticks. Therefore this second, or auxiliary templet, was placed immediately in front of the main templet, conforming to the same outline, but beginning only at the 10-foot height. It too carries its 24-inch sticks 6 inches apart, but by the use of a counterweight this entire auxiliary templet can be raised until it is 18 feet high, making the tips of its sticks 20 feet above the rail. The special trucks used on the car are of a design that permits the main templet to extend below the floor of the car and still give room for an operator to meas-



A Transformer Enroute to California From Sharon, Pa. It Must Have Careful Handling.

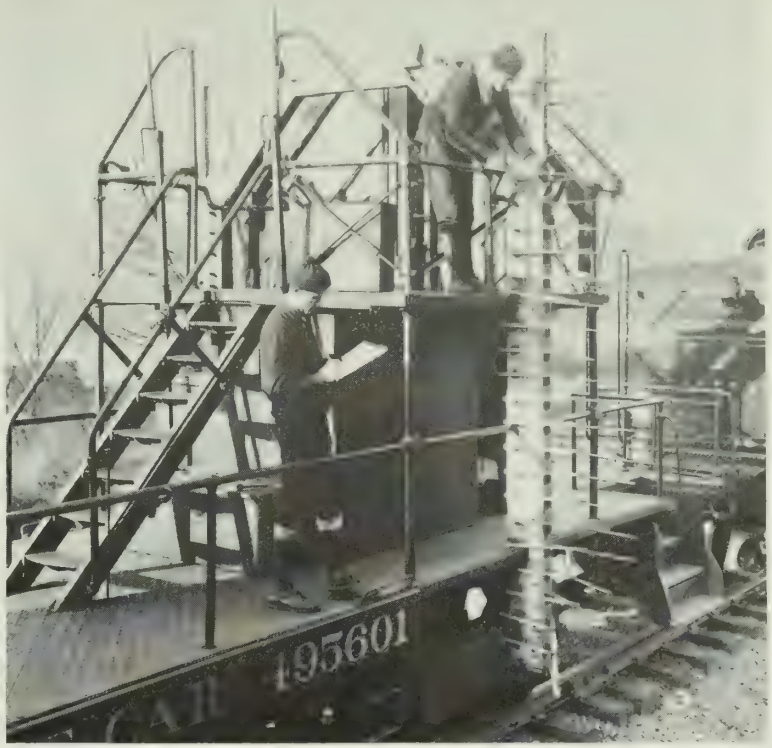
ure and work around this lowest portion of the templet.

With the templet "dressed" attention is given to the instruments housed in the center of the car. One is a device that indicates the degree of curvature when the car is moving on curved track. If an object measured is on this curved track, additional allowance must be made for the overhead at the center of long cars or shipments. Shipments 180 feet long have been moved, deducting the overhang from the measured distance if the object is on the outside of the curve. This device is operated directly from the rear truck by a series of rods connecting the truck with the curvature indicator in the housing at the center of the car.

Another device indicates the elevation of the outer rail on curved track. Information secured from reading the instrument is used to determine how much a car would be leaning should it stop or be moving slowly in passing over the curved track. This device is a pendulum which, when at rest, indicates just how much the car is being tilted by the high rail; all technical, but mighty important cogs in the transportation game.

Batteries are tested to see that the flood lighting is ample for the tunnel and night work. Two large flood lights, mounted on standards, are placed at the back of the car and completely illuminate the templet except below the floor of the car. To illuminate this latter portion two smaller flood lights are placed under the car near the templet.

Everything is now ready for the start, the engine crew having been told to slow down for anything they think the extended sticks might touch, and also having instructions to stop at designated points where measurements are desired. Additionally, two operators stand on either side of the clearance car, keeping a lookout for "work" to be done. The first thing to measure may be a girder bridge which stands up on either side of the track to the height of the floor of the car. The train slows down and all of the sticks from six inches up that will come in contact with the object are swung outward, the operators using a six-foot pole placed behind the sticks as they lay parallel with the car, swinging them all outward at one time. The train proceeds very slowly and as the extended sticks are struck by the bridge girder they are swung slowly backwards by the girder until the tip of each stick is lightly scraping along the bridge, the tension bolt and nut keeping the stick from flying back.



Projecting Sticks That Measure Everything They Touch As the Clearance Special Passes.

The operator notes carefully the exact height of the girder with reference to the height markings on the templet as the train is moving. After the templet has passed entirely through the bridge the train is stopped and from a specially designed graduated rule which has previously been attached, one end at about the center of the stick and the other end sliding through a guide, the operator can read a figure which will be the exact distance between the outer face of the templet and the closest points of the bridge just passed. These dimensions, of course, are at each six inches of height.

This information is recorded on a tablet on which appears a scale drawing of the outline of the templet, showing a line for every stick.

The train speeds up, only to slow down within a few miles to measure protruding rocks at the side of the track. Again all sticks are swung outward and as the rocks extend to a considerable height, and are close, the form of the main templet is changed to meet these conditions. This is accomplished by changing the sloping portion of the templet to a square. One-half of the thickness of the templet is so built that it is hinged at the upper corner. When this half is lifted the lower portion drops to a vertical position and rests on the main templet at the 12-foot height. This vertical piece is dressed with sticks and the train moves slowly past the rocky projections. Any projecting rock closer than 24 inches swings the stick that strikes it backward until the tip of the stick scrapes past. Again the train

Clearance Car Measuring the Sides of a Rocky Cut, and Indicating the Danger Points.

is stopped, one operator beginning at the topmost stick and calling off the distance that is indicated by each stick to the operator who is recording the data. The entire time consumed to take and record the measurements at such a point would not be over three minutes. Time is an element and there is need for close co-operation with the train dispatchers of the division to keep the clearance special moving without interference to regular trains.

At an overhead bridge the side sticks are swung out to record the stone work on the side while the operators confine their attention to the overhead portion, in most cases using a graduated pole to measure the height over the extreme outside edge of the templet, and watching to see that the upright sticks over the center of the car record any projecting portions. They also note what the part may be and whether it can be removed should it be very much lower than the main portion of the bridge proper.

Tunnels really present no new problems except that all of the sticks up one side and over the top of the templet are brought into action. The sticks scrape the tunnel walls and roof, the operators using the poles to get the higher distance over the side of the car away from the side wall. A hot, smoky place to work, particularly when trains pass on the next track, but fortunately soon over, for even with the slow moving train there is always the end where in good air, and generally sunlight, each stick is read and recorded and we know that we have an absolute outline of the tunnel.

Holland Vehicular Tubes are Paying

The Holland Vehicular Tunnels will pay for themselves in ten years, much sooner than the most optimistic estimates of engineers who planned them, and the saturation point of 16,113,345 vehicles a year will be reached next year, instead of 1939, as the commission estimated nine years ago, according to a statement made by the office of the commission in Jersey City.

In the first seven months of operation the tunnels exceeded even the most optimistic hopes for revenue, bringing in toll receipts of $2,401,980. The average daily return during this period was $11,305, and the total daily expenses, including amortization of $48,000,000 in bonds was $10,500.

When the tunnel was projected, engineers estimated that not more than 5,372,000 vehicles would pass through the tubes the first year. In the first seven months of operation, ending June 11, 4,334,295 vehicles were recorded.

Considering the increasing popularity of the tunnels during the summer months and the great increase of traffic, the commission says that the total for the year may mount to 10,000,000 vehicles, almost double the engineers' estimate.

The Station Wasn't Taken

An undetermined amount of money was stolen when housebreakers entering the Seaboard Air Line railway depot at Sherman, Fla. one night last month, and carried away the office safe. A railway push car also was stolen and was used to haul the safe a mile away from the depot where it was blasted. One express package was rifled.

A Railroad Santa Claus

It seems that after all there is a Santa Claus. On the night of April 16 several prominent San Franciscans were held up and robbed by a bandit aboard the Overland Limited as it was leaving Chicago.

The victims have just received checks from the Chicago & North Western Railroad covering their losses. Many had not presented claims.

Let us be thankful for the fools. But for them, the rest of us could not succeed.—Mark Twain.

Erecting Rooms in the Southern Pacific General Shops at Los Angeles.

Modern Methods of the S. P. Shops

Quick Work at Los Angeles

By C. W. Gordon

THE functions of the Los Angeles shops of the Southern Pacific Co. are essentially the maintenance of equipment, repairing of locomotives, passenger, freight and roadway cars, and repairing of various classes of tools. Aside from the manufacture of all tinware used on Pacific lines, a considerable amount of railroad supplies are manufactured in the forge and boiler shops and among the other industries. Silverware used in the dining cars under repairs is replated during the layover at the shops.

One of the most interesting departments is the 24-stall erecting shop 500 feet long, 85 feet wide and 75 feet high. It is equipped with a 200-ton crane able to lift the largest three-cylinder type locomotive and pass it over two lighter service cranes of 15 and 20-ton capacity, thus permitting full use of the erecting space. The runway for the 200-foot crane is 40 feet above the floor.

In this erecting shop every modern appliance has been installed. A system of overhead pipes with various outlets, supplies the erecting shop with steam, high and low pressure, for washing boilers and tubes; compressed air for the use of tools; acetylene and oxygen gas for welding and cutting, and electric power for operation of cranes and tools, and for lighting.

Excellent lighting, both natural and artificial, prevails throughout the erecting and machine shop. About 40,000 square feet, or almost an acre, of window glass is used in walls and ceiling. All wall sash ventilators are regulated by hand wheels, and the two ventilator rows in the roof monitor, each 400 feet long and 70 feet above the floor, are operated by electric motor. The touch of a button will open and close these ventilators.

During 1926 a total of 3821 lo-

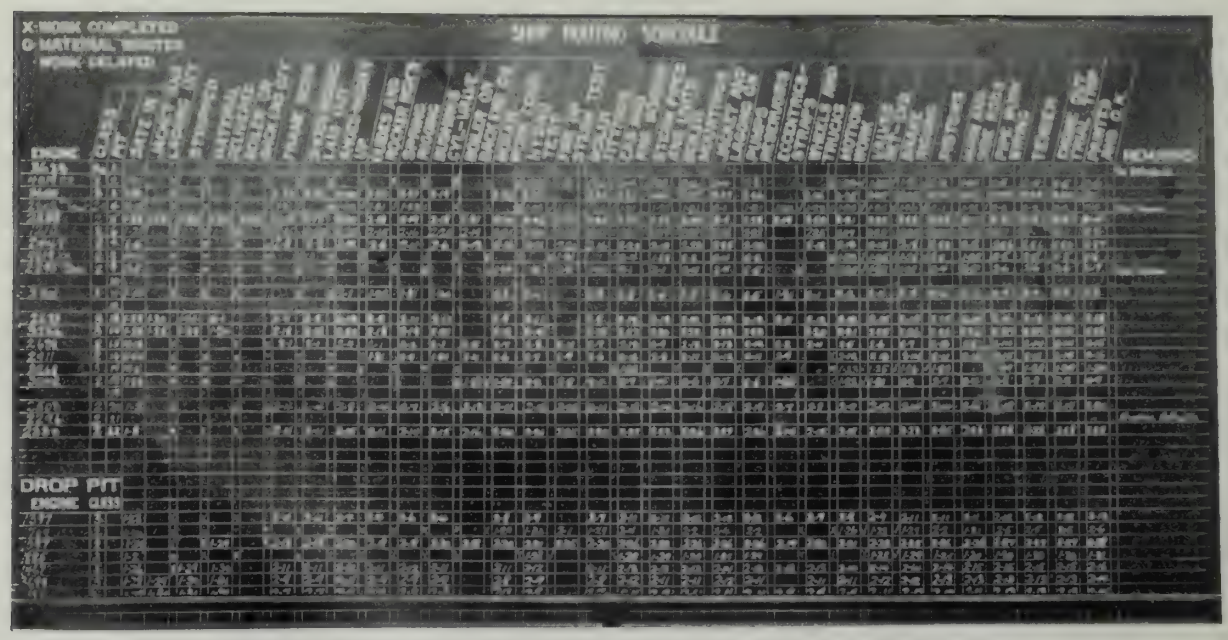
Front End of the Fine Southern Pacific Locomotive Shops At Los Angeles.

comotives passed through the erecting and machine shops for various repairs. In the same period the car department handled a total of 8951 freight cars, 389 passenger cars, and made 181 roadway and miscellaneous car repairs. Thirty-seven passenger cars and 750 freight cars were rebuilt during the year. Construction of 150 beet car racks was also completed, through a well organized system of standardized piece work, ten of these racks being built daily. The steel car shop is equipped with a 20-ton traveling crane. In this department there is a blacksmith shop with five forges, hand car shop and wheel car shop.

The reinforcement of oil tank cars is one of the important jobs now being done at the Los Angeles shops. Head blocks on the oil cars are being eliminated. A ⅜ inch belly sheet is being replaced by a ½ inch sheet. Tank anchors are attached to the heavier belly sheet and to the center sills of the car.

When the erecting shop was constructed various industries that formerly had been scattered over the shop grounds were concentrated in the old erecting shop. Superheater units, which require considerable space, are cared for in a special section of the old erecting shop, the same as for repairs to engine trucks and engine trailer trucks, locomotive connecting rods, air pumps, feed water heaters, and for maintenance of way equipment repairs. These industries are served by the old traveling crane which became inadequate for handling modern heavy locomotives. Six pits are reserved in the old erecting shops for repairing switch engines and lighter type locomotives.

The addition of modern, standard machinery, the readjustment of the new machine units, permitting the effective handling of locomotive parts in course of repair or manufacture, new appliances for handling flues and superheater units, changes in location of wheel



Routing Schedule of the General Shops, Southern Pacific At Los Angeles.

and truck work, elimination of all delays where cranes are needed, increased space and materially improved working conditions, all promote the carrying on of the various shop operations to better advantage, and have brought about substantial reduction in costs, and in time of work with consequent increased production.

Installation of natural gas for all heating purposes has introduced an operating practice that is carried on more extensively than at any other railroad shop in the country. It cost approximately $4,570 to install natural gas, the use of which is expected to effect a saving of about $23,000 annually over the former use of fuel. The largest saving through the use of gas will come from the fact that there are 21 per cent more heat units per dollar in the use of gas than in oil. It is not necessary to use atomizing steam which previously consumed 2½ per cent of the oil burned in the boilers.

Gas is now being used for all heating purposes on six boilers of the power plant, large forges where locomotive main and side rods are handled, and on other small forges in the blacksmith shop, also on flange fires in the boiler shop, etc.

Another use for gas that means a saving in fuel and steam is in firing locomotives in the enginehouse, thus cutting down the time needed under old practices in getting them ready for the road. The present oil piping has not been displaced, but will be held for any emergency which might prevent the use of gas.

Gas Is Used Now in the Forges and for Other Heating Purposes Generally in the S. P. Shops.

Heavier Rail for Heavier Traffic

More than two-thirds of all the rail tonnage produced last year was in the 100-pound section or heavier, according to the American Iron and Steel Institute. For the fifth consecutive year the production of rails with a weight per yard of 100 pounds and over exceeded one million tons. The use of such rail has more than doubled in the past ten years.

Steel rails produced in 1927 totaled 2,806,390 tons, of which 1,931,948 tons weighed 100 pounds and over. This ratio, 68.84 per cent, is the highest ever reached. Of the total production in 1926, 61.12 per cent was 100 pounds and over; in 1925 the ratio was 58.76 per cent; in 1924 it was 48.31 per cent; and in 1923 it was 50.47 per cent.

The principal method utilized by railroad managers to produce more economical operation is by increasing the amount of tonnage moved in a single train. This means larger and heavier locomotives and bigger and more heavily loaded cars, plus more cars in each train. To provide a track which will stand up under the constant operation of such trains and which can be economically maintained requires heavier rail and more ballast.

It is said the passenger revenue of the Atchison, Topeka & Santa Fe for 1927 shows a falling off by some $5,305,000, as compared with 1924, and that the Southern Pacific's revenue from passenger transportation for 1927 was $5,568,740 less than the revenue of 1924 from this source.

Nevada will soon be without a trolley car line. The only one now in operation is a three-mile system in Reno, which will soon be replaced by automobile bus lines.

Once the Air Brake Worked Too Well

By C. P. Philbrick

George Westinghouse having invented his air brake in 1868, some time elapsed before railroads began to adopt it, one prominent railway magnate having abruptly dismissed the inventor, it is stated, with the unkind assurance that he "had no time to listen to a maniac who proposes to stop a train by blowing wind on the wheels." There were others, however, who became interested in the invention, and gradually, it was adopted, until by 1876 passenger equipment on all railway systems was being provided with the invention.

The sound of the rattling dog clattering over the meshes of the ratchet of the brake wheel manipulated by the brakeman who displayed a callous on the heel of his right hand hard as an oaken slab, gradually ceased to be heard. Passengers learned to brace themselves against the seats in front to avoid being pitched over the backs of them when they heard the grinding of the brake shoes, and inhaled an odor like water being thrown on hot ashes, when the engineer would suddenly remember that he was his own brakeman. Improved manipulation resulted gradually however, but it required more time to become quite familiar with the technical working of even so simple a thing as "straight air," as we now comprehend it.

One evening in June, 1876, just as I had seated myself in the chair as a dispatcher at Atchison, Kan., on the old "A & N" railroad, my old wire friend, Ed Holden, dispatcher at state line office of the Missouri Pacific called me and said his general manager would reach Atchison in a few minutes with his special car and engine equipped with the new "air brakes," and perhaps I might like to run over to their yard and take a look at it. I gladly availed myself of the opportunity and reached the point of arrival just as the special came sliding around the curve at a goodly speed. (Rule 93 had not been invented then) and the engineer "Wabashed her," climbed down and turned his engine over to a hostler who had been stationed to receive it, and majestically informed that party that he, the engineer, would indulge in a cup of coffee while the hostler turned the equipment, engine, baggage and special car on the wye. The G. M. was on the ground instanter urging speedy movement as he was as usual in a hurry to get back to Kansas City after brief interviews with some of the local officers. The hostler, in response to a signal, started to move, but the wheels under the special car declined to revolve and were sliding. Everybody shouted, "Let your brakes off." The man on the engine tried to do so, but the brake shoes remained rigidly against the wheels. The baggage car was not equipped with the air brakes, simply piped temporarily and there was no braking appliance on the engine excepting the air pump, reservoir, air gauge and a three-way cock. The hostler continued to apply and release, reverse and endeavor to knock them off, all of which efforts proved abortive. The G. M. was indulging in strong language. Suddenly a scorbutic youth wearing eyeglasses attached to a big black ribbon, and a profound look of self importance, appeared from the car, gave the works underneath a once-over and announced that "on account of excessive pressure, the air in the brake cylinder has possibly become solidified" but the G. M. offered the suggestion that probably the young man's head was inwardly solidified, and strenuously demanded the immediate appearance of some individual who knew something about the working of the profane appliance.

Some one shouted, "Here he comes," and a little chunky car "tink" with big frowsy red whiskers all over his face, came trotting along with a hammer in one hand and a smoking torch—evening was coming on—in the other. The excited hostler on the engine was spasmodically manipulating the three-way cock, applying and releasing the air and the pump was chugging away industriously endeavoring to supply the demand, just as the supposed expert arrived.

The G. M. smoothed his wrinkled front and remarked encouragingly, "Ah, there my man, hurry up now and see what's the trouble here." Everybody squatted down to see him perform. He did so. He dove head foremost under the car, wormed and twisted about, knocked six times with his hammer on one wheel, kicked the brake-beams, opened the drain-cock of the brake cylinder just as the hostler applied the air, and got a lot of cinders blown up in his face. Finally his whiskers were mixed up with the torch flame and a strong odor like unto that from a fertilizing plant floated out upon the summer night.

The young philosopher wearing the glasses murmured something about "spontantaneous combustion," while the G. M. yelled to the expert to "come out from there before you set the (wicked) car on fire," and he crawled out with his face all out of balance; big bushy whiskers on one side and bare scorched skin on the other. He really looked uncanny, and the G. M. urged him to "clear out and and get a shave before my nigger in the car sees you and takes you for a haunt."

Just then, big Jim Thayer, our foreman of car repairs, happened along, crawled under the car, reached up with his hammer and knocked the upper end of a brake lever loose from a cross-sill and the brakes released.

The G. M. shouted: "You're the only man around here with a lick of sense!" and quickly, the party including the wise suggestor of solidified air and spontaneous combustion whisked around the wye and pulled out for Kansas City.

A Sea Captain Rescues a Railroad

The Santa Maria Valley

By Ralph Paul Dillon

A SEA captain who plays the 'cello is a rarity, but even more unusual is a sea captain who runs a railroad. Yet there is such a man, in the person of Captain G. Allan Hancock of Santa Maria, Los Angeles and points south. Captain Hancock owns and operates under his own license, a steam freighter, the "Oaxaca", between San Francisco, San Pedro and his holdings on the west coast of Mexico, where he has a 5000-acre ranch near Mazatlan. Furthermore, he plays the 'cello better than any respectable sea captain should, and he owns and operates a farm and a railroad that is among the seven wonders of the superlative Pacific Coast.

Captain Hancock has done with his road what very few men have done. He has made a short line railroad pay dividends, and this, if we may say so, is something. He is a wealthy man, so wealthy that he is seldom heard of, except in such cases as, for instance, when he provided the backing for the "Southern Cross" flight to Australia, and then it was only by accident that his name was released.

With his money for tools, Captain Hancock has proved his pet theory, that "the best way to educate a man is to let him see you work."

When he took over the Santa Maria Valley Railroad in 1925 its physical and financial condition were deplorable. Two years later the net operating revenue was $29,428, compared with a deficit of $4,097 in 1926. Furthermore, the Santa Maria Valley, which his road connects with the Southern Pacific at Guadalupe, is doing a vegetable business which netted the growers $969,161 since January 1, 1928.

The road is 25 miles long. It has three oil-burning engines, and all equipment is standard and fully in accord with I.C.C. regulations. It is solely a freight carrier, and provides an outlet for the valley, with a population of nearly 12,000, the city of Santa Maria, and Betteravia, where the Union Sugar Co. has a large plant.

Captain Hancock has worked out the salvation of his road in a wonderfully simple manner. Since the Santa Maria Valley has changed in the last ten years from an oil field to an agricultural center, he used a farm for a starting point. At Rosemary Farm, in the heart of the valley, he has created a great model ranch, with herds of purebred dairy stock, horses, flocks of blue ribbon poultry, and acres upon acres of vegetables, to show the community what really could be done with a piece of land.

Capt. G. Allan Hancock, Capitalist, Citizen-at-Large, Sportsman, Mariner, Railroad Owner, Watches One of His Oil-Burners in a Tug-of-War With an Electric Locomotive. The Oil-Burner Wasn't Quite Heavy Enough to Get the Necessary Traction, So the Electric Won the Contest.

Enginehouse at Santa Maria, Cal., and a Part of the Ice and Cold Storage Plant at the Extreme Right.

In order to provide transportation facilities from the valley to the railroad, he organized the Bradley Truck Co. To give the farmers a place to market their produce, he took over the Rosemary Packing Co. To provide packing facilities, he erected sheds, and took over the Santa Maria Ice & Cold Storage Co., which has been enlarged twice since to handle its orders; to give the growers a hand, he keeps large stocks of sulphur, fertilizers and like materials at his warehouses, which are sold practically at cost. To take care of the little fellow, he started the Santa Maria Farms Co., to handle real estate for the ones who cannot afford large ranches. Last, but not least, to give Santa Maria a mouthpiece to the world's ear, he installed radio station KSMR, in 1926, which divides its time between good music and boosting the valley.

There are other stories about G. Allan Hancock, of his great work in Mexico, and of his explorations in the South Seas, but they belong elsewhere. Sufficient to say that when the Recording Angel comes to the Californians, he will put a star after Hancock's name, for he has made out of a wilderness a spot known as the "Valley of Gardens."

Air Mail Needed in the Labrador Region

It took S. R. Montague only a few minutes to tune in a Los Angeles radio station on his receiving set at Fort Burwell, Ungava Island, north of Labrador, but it took him more than a year to get the news to his brother in Los Angeles.

A letter posted on the far-off island northeast of Canada, November 30, 1926, reached the brother, Harry Montague, Dec. 10. It traveled 2000 miles by dog team, other thousands by ship and river steamers and finally spurted the last lap on a fast mail train.

Montague is a member of the Royal Canadian Mounted Police.

Airplane manufacture in the United States increased in quantity output 65 per cent in 1927 over 1926, and in value 60 per cent, according to the census bureau. Actual airplanes, seaplanes and amphibians made last year numbered 1,962, against 1,186 in 1926. There were 61 aircraft manufacturing establishments operating in 1927, 15 of which were in New York state and nine each in Michigan and California.

The Anglo Columbian Left Galveston One Day Last Month with the World's Record Cargo of Sulphur, 10,050 Tons, Loaded in Two Days By the Texas Gulf Sulphur Co. F. W. Parker, General Manager for the Galveston Wharf Co., Says That Port Handled More Than One Million Tons of Sulphur Last Year. Think How Many Matches That Would Make!

San Francisco In Three Hours $50, No Tips.

Air Service De Luxe

By Fred Goodcell

—International Newsreel.

One of the Wheels of the Three-Motored, All-Metal English Monoplane, Inflexible, a 20-Ton Ship.

MORE romance has been attached to aviation, more general acclaim for its exploits, than heralded the coming of the steam locomotive, the steamship, or the motor bus. That is one advantage that can be expected to speed the progress of aerial transport. A still greater and more important advantage, however, comes from the fact that the leaders and the experts of the older and more thoroughly established transport services have not opposed the advent of air travel; on the contrary, they have welcomed it.

Recent announcements have definitely linked several of the big railroad systems of our nation with aviation projects. On the Pacific and the Atlantic we find heads of large steamship companies sponsoring air travel. A motor bus company of national standing has also entered the aerial transport field.

There is, therefore, no apparent feeling of rivalry. The great leaders of transportation have shown a keen appreciation of the possibilities of aerial transport and they have held out welcoming hands of cooperation. The fact that these men have given their support to air travel must establish in the minds of the thinking public a feeling of confidence in this sort of service. It may be added that this feeling of confidence is now all that is required to assure success to carefully operated and fully equipped air transport concerns.

A very thorough test is being given aerial passenger transport in California by Western Air Express, Inc., of which Harris M. Hanshue is president. It may be said, too, that the expansion of this company examplifies the deserved progress that is being made in aviation circles. Western Air Express was organized primarily to operate an air mail line between Los Angeles and Salt Lake City, connecting at the Utah metropolis with the transcontinental air mail system. It started the operating of this air mail line in April, 1926, just a little more than two years ago. Now Western Air Express has four fully established lines, and it is known to have carefully developed plans for further expansion. Incidentally, this company has made money for its stockholders and has been paying regular dividends. It has established the highest record of any air mail transport company in the United States.

The Southern California terri-

Twelve-Passenger De Luxe Plane of the Western Air Express, All Its Motors Whirling, Awaits the Signal At Los Angeles to Start the Flight for San Francisco. This Shows the Comfortable Station at Vail Field and Steel Hangars.

tory, represented in air mail traffic by Western Air Express, during 1927 originated or received 40 per cent of all the air mail handled in the United States. During two years of service it has never wrecked a plane or lost an ounce of mail, and only twice have the planes arrived behind schedule. It was that outstanding record that attracted attention of the Daniel Guggenheim Fund for the Promotion of Aeronautics to Western Air Express and led to the designating of that company to establish a model aerial passenger line in California.

Operating of this line was started May 26 last. The equipment, three 12-passenger Fokker monoplanes, was supplied by the Guggenheim Fund under an equipment trust contract. The planes were manned by two pilots and operated by three Pratt-Whitney motors developing 1275 horsepower giving a cruising speed of 120 miles an hour, a maximum speed of better than 150 miles an hour. They have been described by Antony H. G. Fokker, their builder, as the fastest and most luxurious passenger planes ever constructed.

The route chosen was between Los Angeles and San Francisco, with stops at Oakland if there were passengers to be taken on or let off at that city. The schedule called for the trip to be made in three hours. This requires an average speed of 120 miles an hour, the air line distance being 360 miles. The fastest railroad trains take 12 hours to make the same journey, but they of necessity travel a longer route than the direct air line, and they make more stops.

The schedule calls for a plane to leave either terminal, Vail field,

Harris M. Hanshue, President, Western Air Express

Los Angeles, and Mills field, San Francisco, at 10:30 o'clock every morning. The start has been made daily on the minute. Arrival is scheduled for 1:30 p.m. Northbound planes have been late twice, once three minutes, another time eight minutes, due to encountering strong head winds. Southbound planes, favored by these same winds ordinarily have arrived ahead of schedule. One plane made the southbound trip in the remarkable time of 2 hours, 28 minutes, which is the fastest time any passenger contrivance has ever made the trip from San Francisco to Los Angeles.

Western Air Express charges a flat rate of $50 for this trip. There is no reduction on a round trip ticket. The $50 fare, however does include automobile transportation in large limousine cars operated by the company from the uptown office to the field, and from the field to the uptown office. It also includes luncheon, which is served during the flight. It should prove comforting to know that aerial passenger transport has not yet developed the tipping habit, be it evil or otherwise. The passenger meets the man who sells him the ticket, and his next close contact is with the pilot. The habit of tipping airplane pilots who earn quite large salaries has not become general. It never will.

The Los Angeles-San Francisco aerial line is expected to demonstrate that an air passenger system can operate regularly on a schedule and make a profit. So far the demonstration has been satisfyingly successful. It will take more than a month, however, really to prove the case, but the ultimate success of the California line is expected to prove a great stimulus to aerial transport throughout the entire nation.

An element that perhaps is of

particular advantage to the California service is the extreme beauty of the panorama of California from the air. Beauty, however, in the transportation world does not establish the element of reliability nor instill confidence. Continued steadiness of service as it is now being carried on will bring about these results.

On its air mail line between Los Angeles and Salt Lake City the Western Air Express operates Douglas planes equipped to carry only one passenger. The fare is $60 each way, with a baggage allowance of 25 pounds and 50 cents a pound for excess baggage. This baggage allowance and excess rate is general on practically all air transport lines. The air mail load and the passenger-demand have been increasing on this line, and it is to be expected that larger planes soon may be operating over the route.

Planes for Salt Lake City leave Vail field, Los Angeles, every day at 7:35 a.m., arrive at Las Vegas, Nev., at 10 a.m. and at the Municipal field, Salt Lake City, at 2 p.m. Returning, they leave Salt Lake City at 9:10 a.m., arrived at Las Vegas at 2:25 p.m. and reach Los Angeles at 5:25 p.m.

The air mail load over this line, as has been stated before, has been extremely heavy. With the reduction of air mail rates August 1 it is certain this load will be increased enormously. The air mail rate at present is ten cents the half ounce. After August 1 it is to be five cents for the first ounce and ten cents for each additional ounce.

It is interesting to note that planes operating on this Los Angeles-Salt Lake City route have covered a little more than 1,000,000 flying miles since the service was established 25 months ago. That is 40 times the circumference of the globe, and there has not been a serious accident. Three of the pilots on this line have established imposing flying records during the two years. Charles (Jimmie) James has flown 225,792 miles, Fred Kelly has a record of 237,080 miles and Maurice Graham has flown 234,798 miles.

Western Air Express also operates an air mail and passenger route between Pueblo, Colorado Springs, Denver and Cheyenne, connecting at Cheyenne with the transcontinental air mail route. These planes are equipped to carry only one passenger. Baggage is limited to 15 pounds with a charge of 50 cents a pound for excess bag-

—U & U Photo.

Left to Right, J. A. Talbot, and Mr. and Mrs. Anthony Fokker, in What Is Said to Be the Most Luxurious Passenger Plane Yet Constructed. This Plane Is Now Used in the Daily Service Between Los Angeles and San Francisco.

—Herbert Photo.

The London-Rotterdam-Berlin Express. A New Fokker F VII Passenger and Commercial Monoplane. Speed 100 Miles An Hour. This type Is Being Quite Widely Adopted in Europe for Air Passenger Business.

gage. The rates are: From Cheyenne to Denver, $12; to Colorado Springs, $17; to Pueblo, $21.

Departure of the plane from Cheyenne is set for 5:30 a.m., but this is contingent on the arrival of the westbound transcontinental air mail plane from Chicago. Providing departure is made at 5:30 a.m., the plane reaches Denver at 6:55. Colorado Springs at 7:50 and Pueblo at 8:20 a.m. Returning planes leave Pueblo at 4 p.m. Colorado Springs at 4:50 p.m. Denver at 6 p.m. and arrive at Cheyenne at 7:30 p.m.

More recently a merger of the Pacific Marine Airways with Western Air Express was effected with the result that the Western Air now operates the flying boat line between Wilmington in Los Angeles harbor, and Avalon Bay, Catalina Island. These flying boats carry five passengers, and 25 minutes is required for the trip to the island. The regular schedule calls for two trips daily, leaving Wilmington at 10:30 a.m. and 4:30 p.m., and leaving Catalina at 3:30 p.m. and 5:30 p.m. Special chartered trips can be arranged. The fare is $10 one way and $15 for the round trip. Baggage is limited to 25 pounds.

The Catalina service has been particularly popular during the summer. To expand the service it has been announced that Western Air Express is to purchase eight passenger amphibian planes. When these are acquired they will operate from Vail field and land on the water of Avalon Bay.

Starting with one air mail line it will be noted that Western Air Express, in slightly more than two years, has expanded until it is now operating four air services all of which carry passengers. During the first six months of this year the company has expended approximately $350,000 for new equipment, including the new hangars, and it expects to spend an equal amount or more before the close of the year.

Operating an aerial transport system may appeal to the imagination of the inexperienced, but it takes practical sense and sound financing to make it a success. The problems are complex, more so because of their newness, than those that face other transport systems. Many may enter the field, but only those properly directed will survive. The next few years are certain to witness tremendous progress in air service, and the result is certain to be that a few large companies will be in control, just as the great railroad systems now dominate that industry.

It has been said that anyone can learn to fly, just as anyone may learn to operate an automobile or drive a locomotive. But the number possessing the training and the business acumen successfully to direct an aerial transport system are few, just as there is a limited number of men possessing the adequate ability to carry on the complicated business of a great railroad.

Ah! The Poor Farmer

An airplane is being used by Albert Schram, farmer near Yankton, S. D., to take his farm products to market. Schram, who took a course in aviation and obtained a pilot's license, recently purchased a plane for use in hauling farm products and for business trips.

Barber & Baldwin, Inc., New York, aviation insurance underwriters, have reduced the extra premium on life insurance policies to cover flying risk 40 per cent to 50 per cent. The revised rates to cover pilots and passengers on aircraft range from $5 to $25 a thousand, against $10 to $40 a thousand formerly.

A new airplane beacon that points a moving finger of red light has been developed in the research laboratory of the General Electric Co.

Since red light waves are longer than white, engineers hope the beacon will be effective in penetrating fog — greatest hazard of night flying. Although experiments on the beacon's visibility in clear and heavy weather have not been completed, preliminary tests at short distances have shown that the beam will pierce mist.

Operated by neon gas rendered incandescent in a quartz tube by a low voltage current, the 4,000,000-candle power lamp is in some respects similar to the neon lights now used in advertising signs.

Editorial Comment

The Old Dispatchers

IN THE department given over to "The Men Who Do the Work," we are telling the story, this month, of a Canadian dispatcher who has just retired after running trains for much more than half a century. Necessarily, the story is incomplete. It will never be told in this publication, for the very simple and sufficient reason that the postal authorities laid down certain rules with respect to the language editors may use. We are obliged to draw the line definitely at a certain point in our writing.

Enginemen have a language of their own. So have the trainmen and the yard forces. The trainmaster and the division superintendent, too, have singularly rich vocabularies in the use of which they become more or less proficient as the years go by, depending upon operating conditions. All these group languages, the entire wealth of expletive and quaint expression, are turned loose upon the hapless heads of the dispatchers at one time or another. A single quotation in the original switch-shanty vernacular would bar this magazine from the mails.

It is a peculiarity of the railroad business that no one outside the dispatcher's office, unless he has served his time in that work, is intellectually capable of understanding just why the dispatcher put someone in the hole for thirty minutes at a blind siding. The crew of a way freight will roam around over a division for untold hours, unloading a few things here and there, discussing the state of the nation with the agents or operators, stealing time out of every station, and then come in ready to murder the dispatcher because he didn't give them forty minutes more against an opposing train.

The subject offers almost endless possibilities for a six-volume edition on the strangeness of human beings as exemplified in the average train crew. In all the daily experiences of railroading there is no delight like that which a perfectly normal conductor or engineer feels in reporting that he was laid out somewhere for something. Next to the political party in power and about to get out, no one is held responsible for so many things as the dispatcher. Car shortages, bad weather, crop failures, epidemics, all are blamed to his malign influence. Grim visaged trainmen in the lunchroom after a long run discuss his alleged shortcomings with all the ferocity of a garageman answering a night call.

And there isn't a more important person on the whole road, nor one upon whom rests a greater burden day and night. When we were dispatching trains many—O very many—years ago there were no telephones, no electric lights, no block signals, no automatic train control; but the language of the time was just as colorful. There was no organization. Salaries were about one-half as high as they are today. Night offices, on our western road, were few and far apart. When a train was started on its way that was the last heard of it, some times, for many hours. What some of the crews said at the end of a trip was remarkable for its cutting inelegance and vituperative acidity. When we think of this veteran up in Canada serving fifty years or more, as related in the article referred to, we wonder just what kind of meat he fed upon to last so long. What things he could tell! What the people said during the Commune in Paris was childish prattle compared to the flood of picturesque adjectives applied to this old dispatcher at one time or another. How dull life must seem to him now.

"INTRENCHED SELFISHNESS"

IF THE people are to remain politically free they must be economically free.

The only hope in that direction is for them to keep their own business in their own hands.

Public ownership leads inevitably to a position of intrenched selfishness where a great body of public employes and large outside interests are in virtual control, with the general public paying a high cost for poor service.

With all the care possible to exercise a situation of this kind becomes entangled in favoritism, and is always in great danger of causing corruption and scandal.

—*President Coolidge in an address April* 14.

Don't Hurry Us, Major

"If railroads don't take up air transportation," says Major Young, director of aeronautics for the department of commerce, "they will have to face the same problem that buses now present to them. The air industry cannot be stopped. The railroads must cooperate or suffer."

Major Young said only seven persons were killed last year in commercial airplane accidents. Six of them were pilots. Planes on fixed schedule flew 2,650,000 miles in 1927, while light commercial planes covered more than 19,000,000 miles.

The major should not permit himself to become violent over this interesting question. Several of the principal railroads of the country are establishing cooperative air-rail service this month. By the first of September it will be possible to go from New York to the Pacific Coast over any of several air-rail routes now about ready to begin operations. Other services between New York and Chicago,

between that city and Los Angeles, and still others between New York and Cleveland and Detroit will form a very creditable beginning. Major Young should not expect all the Class 1 roads to start airplane service immediately. There are many other ways of wiping out the net return. One thing is quite certain: If you wish to learn new schemes for spending money listen to a government employe. They have more fertile minds in this direction than the engineering department of the average state college.

Hoover and the Railroads

F. J. Lisman of New York points out that some light is thrown on Secretary Hoover's attitude toward the railroads and particularly the short line problem by his testimony before the senate committee on interstate commerce on May 21, 1924. In part Mr. Hoover said:

"It may be complained that the poorer railways should not be foisted upon the richer ones, but it is a question partly of the prices at which they are absorbed and partly one of their prospective value rather than of their present earning power, for the prospective value of every railway is very large in the vision of the future growth of the country as a whole.

"More than that, there is a larger question that has not yet been fully investigated, in that many weak roads are feeder lines and the division of joint rates between them and the trunk lines perhaps ought to be on a more favorable basis to the feeders. If we are not to have consolidation, this problem would have to be taken up, and I think it might result in the earnings of many strong roads being diminished by diversion to the feeders. But with consolidation such questions will not arise at all. The problem of stable finance is even broader than the problem of the weaker roads."

Why Not More Speed?

The keel of the world's largest liner is soon to be laid at Belfast. The vessel, owned by the White Star Line, will take three years to build. It will cost $35,000,000 and will be employed in passenger service between Southampton and New York. It will be 1000 feet long, have a speed of 25 knots and have 60,000 tons' displacement.

Steamships are big enough now. What the traveling public wants is more speed. Nothing much has been neglected in point of comfort and luxury, but the steamship companies haven't kept up with the rest of the world of transportation in respect to time. It takes just about as long to cross the Atlantic or the Pacific today as it took 20 years ago. Between Honolulu and the mainland, for instance, only one boat makes the passage in four days. The others float along in the old way, about six days usually. If the Malolo can get to Honolulu in four days, as she does, the wonderful liners plying between New York and Europe ought to cut at least a day off the present schedule. For the ordinary passenger boat the voyage from Vancouver to Yokohama takes up just as much time as it took in 1895.

Thrills From Washington

Every time life seems about to become dull and prosaic the news from Washington gives us a thrill. Particularly in the summer. Perhaps it's the heat, but whatever the cause it is a safe bet that in this season the national capital will contribute the day's piquant item.

This time the Interstate Commerce Commission, simmering in its warren on Eighteenth street, exudes the solemn information for the delight and relief of a perspiring people, that checkers and dominoes in carload lots are entitled to a substantial rate reduction. While we confess ourselves far from being rate experts we do not see why this decision may not apply also to tiddle-de-winks. And what, may we inquire, is the rate on poker chips in carloads?

Value of Transportation

In the "good old days" of steamboat travel, the farmer's wheat came from such fields of Minnesota as were adjacent to the water routes of those days, down the river by steamer, to the great markets of the day which were St. Louis and New Orleans.

It is recorded that the steamboats of those days, constructed entirely of wood and subjected to many vicissitudes from snags, fires and other accidents, earned enough to pay for the boat and yield a fair profit to the owner in about two years and often times in a single year. A study of the rates charged in those days shows them to be much in excess of any current charges.

In order to ship by boat it was necessary for the farmer to sack his grain in two-bushel sacks and these sacks cost approximately 20 cents apiece. The cost of sacking the grain was 10 cents a bushel whereas today the grain is hauled from the Twin Cities to Chicago for 8.1 cents a bushel or less than it cost the farmer to sack his grain in the "dear old steamboat" days.

This comparison applies to the years prior to 1860.

When the railroad came it was necessary for the steamboats to adopt more efficient methods and to provide better facilities. Special grain barges came into existence and did away with the necessity of sacking grains and enabled steamboats to compete with the railroads for a long time. During this period there probably was the best coordination of rail and water transportation that the country has ever experienced.

Grain came down the river from St. Paul, Winona, La Crosse and vicinity to the cities of Dubuque, Savannah, Fulton, Davenport and Burlington where it was transferred through elevators to railroad cars and shipped to the eastern markets of Chicago or New York. But even this, which was a practical example of successful coordination, involved a transfer expense and extensive elevator facilities, both at the northern and southern ends of the water route which involved a considerable expense. As the sources of grain were extended back into the interior of Minnesota, South Dakota and North Dakota, and haul by rail was necessary into the northern elevators, it was found more expedient and in the public interest, to carry this grain the entire distance by rail. The immense development and wealth which has been accumulated in the territory in this manner, is unquestionable evidence of the tremendous economic value of railway transportation.

This is reflected in the increase in land values in these territories which equals many times the entire investment in railroad facilities, giving evidence that the major benefits of transportation have gone to farmers of the middle and northwest rather than to the railroads that serve them.

It is questionable whether water transportation can be revived and improved to such an extent as to enable it to compete successfully with the railroads of today which are increasing in efficiency from year to year and rendering it correspondingly more difficult for any method of transportation to compete successfully with them.

The Editorial of This Edition

THE annual report of the Big Four Lines for 1927 draws attention to the steady increase in the average distance traveled by revenue passengers. In 1910 this distance was 54 miles; in 1920 it was 74.9 miles and 113.8 miles last year. If this gives any comfort to the Big Four stockholders they must be easily satisfied. The rather grim and discouraging fact not featured by the report was the continued decrease in passenger receipts, but perhaps this was considered obvious, and therefore not worth talking about.

The railroads have done about everything within the realms of possibility, and many things that to outsiders seem like philanthropy, to encourage long distance travel by providing comforts and luxuries undreamed of only a few years ago. Long distance travel is increasing, but the expense incurred in trying to build it up is eating the heart out of the net railway operating income. This department discussed luxuries of this kind in the June issue of this magazine, concluding with the reflection that the passenger departments are overdoing it.

With the continued and rapid increase in the numbers of private automobiles the passenger departments are facing a discouraging situation. Buses, it is admitted, have taken a large share of the passenger travel, but railroads are able in a measure to compete with this force. So far as the transcontinental bus or stage lines are concerned, their influence is negligible; men in the business doubt whether a passenger ever makes a second trip across the country in this kind of conveyance. There is a novelty, however uncomfortable it may be, which draws a certain class to try the experience once or twice. Buses and stages are not a factor seriously to be considered, but the private car certainly is just that, and it is a factor over which the railroads and the regulating authorities have no control. If a man prefers to take his family across the continent in his own motor car, landing them at their destination looking like a band of tramps, it is no one's business but his own.

This form of competition is hurting the railroads, and hurting them so badly that something must be done to cut down passenger operating costs if financial disaster is to be avoided. The outstanding remedy, of course, is pooling, and the law forbids this. Therefore, the railroads will have to make out a case before the commission at Washington, and then before congress to have the law changed. To continue running entirely superfluous trains across the country, providing the highest degree of luxury for an out-of-pocket traffic, is poor business, and the public should be taught that fact because, finally, the public must pay the bill in still higher rates or in costly receiverships.

To get the clearest picture of just what we are aiming at in this instance one has only to watch the evening trains out of the cities, notably, for example, Chicago trains for Kansas City, Omaha, St. Louis and the Twin Cities. Before it went into receivership the Milwaukee was advertising 12 or 14 extremely expensive daily trains between Chicago and St. Paul and Minneapolis. Five roads operate 35 or 40 trains every day between Chicago and Omaha. The Alton, still in the court's hands, is running a dozen or more handsome trains between points easily to be served by one-half that number. Out of Chicago every evening, or before midnight, the handsomest trains in the country and the most costly to operate, leave on the Burlington, the Chicago Great Western, the Milwaukee, the Rock Island, the Soo Line and the North Western for the Twin Cities. Except upon special occasions and in certain brief seasons, all the passengers could be carried comfortably by two or at the most three roads. Trains leave Chicago every evening practically empty.

Of course it is useless now to say that certain lines need never have been built. They are in existence and they are providing the finest kind of transportation. But they certainly will have to get together

one of these days to cut out a large number of useless revenue-eating passenger trains and revenue-eating dining cars and perfectly useless lounge cars leaving the big cities at an hour when all sensible passengers go immediately to bed for an over-night run.

In 1927 the railroads carried 206,486,319 fewer passengers than in 1921 and the cost to the public was $255,745,000 less than it would have been had the rates of 1921 remained unchanged. Obviously, the roads can not continue forever to produce this public service at the present enormous loss. It is not only poor business but it is not fair to the stockholders. The thought may appear grotesque, but it is nevertheless worthy of consideration that these stockholders have certain inalienable rights which the government at Washington will have to recognize one of these days. Railroads have been giving a good deal for nothing for a very long while, but it is not a good way to run railroads.

Obsolete Yard Equipment

This magazine has commented at some length and frequently upon the question of obsolescence, and particularly with respect to the unwise custom of putting old, worn out road engines into switching service. In a meeting of the Pacific Railway Club, not long ago, the evening's discussion was brightened by an extemporaneous contribution from an engineer employed by the Southern Pacific Co. The papers had treated the subject of yard costs. "Something should be said about yard equipment," said Engineer S. O. Sanden. "Often antiquated road service equipment is transferred to the yard. It seems to me that this is a mistake, as there is an increased cost of fuel, less flexibility and efficiency in the handling of cars, than if good superheated engines were used. For instance, some of the older type of engines will have to stop work to take water every three or four hours while the more up-to-date engines need not take water for six or seven hours. Up-to-the-minute yard equipment would, of course, result in the lowering of yard costs."

Several experienced yardmasters, trainmasters, and others had talked for two hours about yard costs. In about a hundred words this engineer said more important things than the whole outfit.

Advertising Is News

Editors all over the land have been in convulsions for a month or more discussing the tiresome old question of advertisers' alleged influence over editorial columns. The subtle Kansas philosopher, William Allen White, said his piece most adroitly. "I know of no editor so low," said he, "that he would take direct dictation from any advertiser. I know of no editor so high that his mind is not affected by his industrial environment."

Mr. White is right, as he usually is and has been, except in 1912. What he means to say, doubtless, is that any editor is quite within his rights, ethically, in printing a story describing an industrial enterprise. He may run an article creating the buying mood for products certain to add to the sum of human happiness and comfort, and he may do it without turning his paper into a catalog.

If an editor is to be condemned for mentioning a product sold for profit what shall be said about the millions of words of twaddle printed free about motion pictures, theatrical entertainments, million-dollar fights and so on? The papers printing all this stuff for nothing nevertheless charge for every line printed about a church service where no profit is made. There is a world of buncombe in this flapdoodle about editorial independence. The most truthfully independent paper today in New York has the smallest circulation. The newspaper in the Middle West which brags most loudly of its independence has the least influence of any. There may be success and service in this but we fail to see it.

The Art of Holding One's Tongue

The Canadian National Railways Magazine, one of the finest company publications printed anywhere in the world, typographically and as to literary merit, contained a page editorial in June which should be read, but unfortunately will not be, by every railroad man and other millions everywhere. The subject is used as the heading for this comment.

"The loquacious man," said the Canadian editor, "shows lack of self-restraint, which in turn is evidence of a mind not properly balanced. One of the cardinal virtues of the Greeks was self-control (temperance), always, indeed, a cardinal virtue, which should include speech as well as anything else. 'I like your silence,' says Shakespeare, 'it the more shows off your wonder' and again 'give all thine ear, but few thy voice' which is excellent and saving advice."

The editorial ends with an apt quotation which many may recall among the memories of school days:

> If you your lips would save from slips,
> Five things observe with care,
> Of whom you speak, to whom you speak,
> And how, and when, and where.
>
> If you your ears would save from jeers,
> Five things keep meekly hid,
> Myself, and I, and mine and my,
> And what we do and did.

Now if the gentleman at Montreal will write another editorial telling men just when to talk it should be helpful. Silence is, indeed, golden, but many a man loses his chance in this world by keeping dumb. It's a fine thing to know when to speak. It should be useful at home.

How Quickly Can You Think and Act?

The Test for Recklessness. This Candidate Is About to Be Shocked, But Fortunately He Doesn't Know It.

Some Tests in Reaction to Dangers

By U. V. Wilcox

WITH hundreds of thousands of trucks, buses and motor cars on the streets and highways, grade crossings everywhere, and railroad trains running at high speed, it is becoming more and more important to know just how long it takes for a man, or a woman, to think, and then to do the right thing in an emergency.

The ability to think and do; the interval between the moment the trouble ahead is threatened, and the fraction of a minute it takes you to put on the brakes, is known in psychology as reaction time. It won't do any good to scoff at this 'ology stuff. You may have to stand the test some day before you get a license or have the present one renewed. One thing is certain: Something must be done pretty soon if the slaughter of the innocents is to be stopped.

What is this psychological test? Seated in a car like your own, the professor riding with you says:

"Keep your foot on the accelerator just hard enough to hold the needle of the speedometer to 180 revolutions a minute."

You notice the ordinary speedometer has been replaced with a chronometric tachometer of very high accuracy.

The professor continues: "Remember, it is necessary to make this car travel at exactly this speed for some distance, at which time I shall pull a wire that will fire a revolver now attached to the running board. On the instant that you hear the report, put your foot on the brake and press down to stop the car. With your foot on the brake, another shot will be fired automatically by the second revolver attached to the under side of the running board of the car."

Special Speed Indicator on the Steering Column. Used in Tests.

"Remember," says your practical psychologist, "that you are to lift your foot from the accelerator and put it on the brake the moment the first shot goes off. You are to act in every way the same as if a failure to stop would bring about a serious accident."

Such are the indicated tests for the drivers of tomorrow, according to Dr. F. A. Moss, head of the psychology department of George Washington University. In cooperation with H. H. Allen of the federal bureau of standards he has been discovering just how long it takes to think, in an emergency. The fact that you were in an accident may soon be considered as evidence sufficient to test your accuracy and speed of thought.

Your first test will be made with the car going at ten miles an hour, the second at 15 miles, the third at 20 and so on up to the legal limit. After each test you probably will be only too anxious to help compute your speed of thought and coordination of muscle by measuring on the road the distance between the shots fired by the two revolvers. These revolvers are loaded with paper and red lead. One is fired as the car reaches certain specified speeds. The other goes off the instant the foot is pressed down upon the brake. The mark left on the road by the two shots and the distance between them gives the basis for comparison taking into consideration the speed of the car, and as a result, the reaction time of the driver is obtained.

"The ability to react quickly in an emergency, is a qualification that is exceedingly important," Dr. Moss says. "Nearly all cities," he continued, "require the brakes of a car to be capable of stopping the machine going at a speed of 20 miles an hour in 50 feet. But in no jurisdiction is there the requirement that to qualify to operate a truck or an automobile the driver must be able to move his foot from the accelerator to the brake within a specified time. Yet standardizing the human element is fully as important as standardizing the mechanical equipment."

For the man or woman who drives much there flashes before the mind's eye innumerable incidents where a fraction of a minute, an instant's hesitation, would have meant crushed fenders, collision and even tragedy.

To obtain some basic idea as to the length of time it takes people to think when confronted with a sudden and unforeseen emergency, Dr. Moss, assisted by Dr. Allen, invited a number of persons to take the simple tests which had been conceived. Thirty-six students from the university, 26 men and 10 women; 10 taxicab drivers, 50 soldiers and 12 officers of the motor transport corps of the United States army volunteered to be tested.

They were tested at five speeds, from 10 to 30 miles an hour. The average reaction time for all was slightly more than one-half second. Some were as low as 0.31 seconds and others as high as 1.02 seconds. Dr. Moss pointed out, "those tested were presumably above the average in intelligence and it would be properly supposed that drivers could be found on the streets who would have reaction times as long as 1.5 or even 2.0 seconds."

Just what this means in driving was vividly explained. "Taking the average of slightly more than one-half second," he calculated, "if a driver were traveling at 30 miles an hour, he would go approximately 22 feet after hearing or seeing the signal before beginning to apply the brakes. And a driver with a mind as slow as one and one-half seconds reaction time would indicate, would go 66 feet before beginning to apply the brakes.

"And it must not be forgotten," Dr. Moss emphasized, "that this distance does not represent the time required for the brake to stop the car, but is merely the time that will elapse before the driver even puts his foot on the brake. Afterward the brakes, according to their efficiency, must bring the car to a standstill.

"From this it can be seen that even if a machine has the finest set of brakes possible, the driver could not begin to stop it in the 50 feet allowed at a speed of 20 miles an hour if he happened to have a one and one-half second reaction time."

Dr. Moss says his figures are not to be considered wholly conclusive. Such tests carried out in all parts of the nation will soon give a more accurate basis since science demands the minimum degree of possible inaccuracy. Yet the work of Dr. Moss, say traffic officials, is a notable beginning that gives a foundation upon which to build.

Time-Reaction Test. In A Sound-Proof Booth. Here, Also, An Electric Shock Tries the Driver's Nerves.

The tests mentioned showed that women were as quick thinkers on the average as men. Also that taxicab drivers, showing a general average of .41 seconds, varied the least of all. This is due, apparently, to the fact that the length of time they have operated taxicabs creates accuracy and speed of thought. The average number of years they had driven was between six and seven, and many were behind their wheels from eight to 14 hours a day. Dr. Moss believes this shows there is hope for the slow thinker. If, for example, your reaction time is not up to the standard it may be that after experience you could again take the test and qualify. If an individual is able to shorten his reaction time in two years from 0.70 seconds to 0.55 this would indicate he would have become a better and safer driver. Taking this improvement, his ability to progress in another year could be estimated accurately.

While it is the general belief that it is harder to teach older persons than the younger, the older ones cannot be blamed for a slower reaction time. In the experiments made it was found that no relation existed between age and speed of thought. Undoubtedly at this place other factors enter into the situation such as a knowledge of the car's mechanism and the driver's confidence. Some persons are safe drivers at different speeds. This variability was indicated by summing up as to the results of the tests made as the car increased its speed. In the future it may be necessary to prevent by mechanical means or otherwise, some drivers going above their safe speed and to insist that they do not tour on the boulevards where the fast drivers go.

Dr. A. J. Snow of the department of psychology of Northwestern University, has devised a more complicated series of examinations for weeding out the applicants for taxicab drivers. He has been able to put his methods into actual practice and has rejected or hired taxicab operators for a large company in Chicago. As a consequence he has been able to prove that "psyching the cabby" pays in fewer accidents, lowered insurance and fewer legal difficulties. Dr. Bernard G. Bullen in New York has been working along similar lines.

Not Very Many Years Ago, on Fifth Avenue, Near Forty-Fifth Street, New York. Not a Motor Car in Sight, Not a Truck, Not a Taxi. Nothing But 'andsom Kebs and 'osses; and Just Look at Those Skirts, Will You?

Consider the test for emotional stability. You may never have heard of it but you are subject to its influence just the same. Suppose you drive away some morning after a few unhappy moments with friend wife about the month's bills, or you are facing an overdraft or a note is due that day. You are in no condition to be driving a car. Your state of mind turns you into a menace for the rest of the public. You ought to be restrained. You drive past traffic signals, convulse all the officers, stop on the railroad track to light your cigaret or whatever it is you spoil the air with, and then when you land on the front page you begin to wonder, if you're still in condition to do it, just why you were selected by a mysterious Providence to make this public demonstration of imbecility.

There's a test for this thing. When you take it you are required to operate some switches and foot pedals in such a manner as to light, in turn, a series of electric lamps. How to do this is explained beforehand. Then, while you are carrying out this operation, unexpectedly you feel a mild electric shock. The psychologist watching from some unseen position notes just how such a mild shock upsets your equanimity and shatters your ability to complete your work

P. M. Wentworth, Vice President, Florida Motor Lines.

of turning on the set of lights. Novel, isn't it?

Dr. Snow also has a test for carelessness. Here you must move a pencil point rapidly along a set of grooves in a board. You must not allow the pencil to touch either side of the groove. If you touch one side an electric signal is registered against you. These grooves are similar to city streets.

Still a third test shows space preception. With a small model of a car moving on a table you are required to estimate speeds and meeting points. If you fail to do this accurately and quickly it is probable that you would make similar misjudgements when piloting a car on the streets.

Such tests have proved valuable. The men passing them have fewer mishaps than men who were not required to pass them but were judged only according to their general ability. One thing is pretty conclusively proved by science: You don't know much about your own limitations until you are tested.

Motor Lines of Florida

By Joseph Faus

The Florida Motor Lines operate over 1290 miles of macadamized highways with 124 de luxe parlor car buses on regular daily schedules between 184 cities. In 1927 these vehicles traveled 3,715,183 miles, carrying approximately 2,000,000 passengers. Hourly schedules are maintained between the larger cities and others at least daily between the small cities. Fares are equivalent to those of the railroads', and the company, incidentally, has arrangements with many steamship and railroad lines whereby their services are mutually and profitably exchanged.

Due to the vastness of the territory served, the state is separated into three parts, with divisional headquarters in Jacksonville, Tampa and West Palm Beach. Executive offices for the entire territory are in Orlando, in the central part of the state. These are presided over by P. M. Wentworth, vice president. Ticket agents, mechanics, drivers, accountants and so forth, employed by this concern, number 260 at present. There is considerable rivalry among the three divisions as to whose buses are kept mechanically the best so that they may be operated more economically and function smoothly. This friendly competition goes to create better service for the traveling public, as well as 100 per cent proficiency and speed in the ranks of the ambitious employes. There is a master mechanic in all repair shops, and maintenance by prevention is their keynote to results.

The workers have an attractive little publication they get out for themselves, called The Exhaust. The company, for its legion of patrons, regularly prints small news folders that contain interesting items about the route traversed. The traveling agent of the Florida Motor Lines visits the travel bureaus throughout the North twice yearly. The company thus has contracts with more than 500 such travel and tourist bureaus in the United States. In Florida, besides its own 32 agents, it has commission contracts with 68 other agencies.

This company insists that its drivers must bring their machines to a complete stop when they come to a grade crossing, and that they take definite steps to ascertain whether a train is approaching. As is awarded the driver who works a result it has had the minimum of serious accidents. A gold star twelve months minus any catastrophe, and some of these drivers have several stars.

While it is a fact that tourists, from November till May, provide the larger portion of trade for the Florida Motor Lines, it is also a fact that the home folks do a little gadding themselves in June, July and August.

The meritorious and energetic operations of the Florida Motor Lines are broadcast by the traffic department, headed by George D. Johnston.

The Florida Motor Lines Operate Over 1290 Miles of Paved Highway, With 124 De Luxe Parlor Buses, and Serve 184 Cities and Towns.

Training for Railway Work in India

—U. & U. Photo.

The Busiest Street in the Busiest City in India—Royal Exchange Place, Calcutta.

By P. H. Maflin

Secy., Railway Board, Simla

PROBABLY no country is feeling to a greater degree the need for educating the railway employe in his work than is India. As in other countries a marked increase in the cost of operating the railways has been accompanied by an insistent demand for reduced rates and fares, and also for improved facilities for the third class passenger which tend to reduce the ratio of the paying to the non-paying load. It is clear that if the Indian Railways are not to become a burden to the state, increased efficiency in supplying transportation is essential, and while something can be done in improving the material used, the great need is to obtain better results from the staff in handling it.

It is here that the prejudices of caste and creed, often leading to deliberate obstruction of work, are severely felt, with the ill effects of the system rampant in the East which makes recruiting largely a family affair regardless of the efficiency of the candidates. There is also the further difficulty that promotion from the lowest to the highest grade of the service, which is an accepted feature in European and American countries, is practically an impossibility under Indian conditions with the result that instead of there being one continuous ladder of promotion from the bottom to the topmost rung there is a series of short ladders with an almost impassable barrier between each successive pair. Inevitably it follows that the majority of the holders of positions of any responsibility have not that practical knowledge of the working of the staff below them which can come only by personal experience.

All these factors have contributed in bringing the question of recruiting and training the staff very prominently before the Indian Railway administrations, more especially in view of the pledge given by the government of India to adopt a policy of Indianisation up to a minimum of 75 per cent of the staff in all grades, provided suitable candidates can be found. To make this scheme a success it is essential that the best type of candidates be secured, regardless of the influence they possess, and that something more be done toward a definite system of training. With the first of these problems we have in this paper nothing to do. A solution is being looked for in the appointment of small committees of officers who will be responsible for selecting candidates. Our immediate concern is the second problem, and the system of railway transportation training schools now coming into existence to meet it.

The lapse of the leases held from the state by the East Indian and Great Indian Peninsula Railway Companies has brought under

—Herbert Photo.

New Two-Car Electric Train Running From Berlin to Leipsig. This Train Averages 68.75 Miles An Hour.

the direct control of the government of India, as represented by the Indian Railway Board, 15,000 miles of line on which are run considerably more than half the total train miles of the country. As a result the board has been able to initiate on the combined state railways a complete scheme of training in railway duties, covering all grades of the transportation side, which it is hoped ultimately will have a marked effect on general railway efficiency. Briefly this scheme comprises:

The dividing of the state railways into areas each with its own area school, responsible for the primary training of the staff in that area.

A central school at Chandausi in the United Provinces where senior subordinates from all the state lines will receive a more advanced training.

A railway officers' training school at Dehra Dun.

In this system the area schools are the basis of the edifice, the points at which training begins, and they will have two distinct functions:

The training of probationers who have not yet begun their railway service.

The providing of periodical refresher courses for those already in the railway service, accompanied by certificates on the result of each course.

In considering the training of probationers, it must be borne in mind that a general education is no part of this scheme, which deals purely with railway subjects; generally speaking the candidates, chosen by the selection committes mentioned will have read up to the matriculation standard, and, for the present, only men for the traffic and commercial sides will be taken. These fall into three groups:

The station master group. These men will take a course which will not exceed ten months, in telegraph signalling and duties on both the traffic and commercial sides.

The commercial group comprising coaching and goods clerks (passenger and freight) who will have a three to four months course in coaching and goods duties, plus some knowledge of traffic working.

The trains staff group comprising guards, (trainmen) who will have a two or three months course in the particular branches of knowledge they require, including some running on the line with an experienced guard.

In every case there will be an age limit for appointment as a probationer, and probationers will be required to pass an examination at the conclusion of their courses. They will then work at least 12 months on the railway before confirmation, to ensure that they will prove satisfactory railway men.

The second function of the area schools, the providing of refresher courses, is intended not only to provide courses of training at intervals of say five years, but also to include the issue of certificates. The intention is that no railway man will be considered eligible for promotion unless he holds a corresponding school certificate. Whereas no fully functioning area school is yet in existence although the nucleus of one exists at Asanol on the E. I. Ry., the Chandausi school already is a going concern. It is the present intention that Chandausi shall combine the functions of an area school with those of a central institution providing courses of a more advanced type for subordinates from all the state railways. There are at present three classes of students instructed at Chandausi, namely, The senior class, with a maximum number of 28, who come for 30 days, including examination. They are composed of junior officers, station masters and assistant station masters of important stations, inspectors from the various branches of the transportation department, running shed foremen, traffic controllers and occasionally senior drivers and train examiners. The course comprises instruction in:—

General rules for working traffic.
Practical train passing and control.
Vacuum brake.
The principles of the locomotive.
Station accounts and coaching and goods clerks' duties.
Telegraph office supervision.
Statistics and railway organization.

The junior class, maximum number 28, period including examination 30 days, comprising station masters and assistant station masters, etc. with instruction in:—

General rules for working traffic.
Practical train passing.
Vacuum brake.
Wagon construction.
Station accounts and coaching and goods.
Clerks' duties.
Telegraph, theory of instruments.

The area class, which is the first step toward the formation of the Chandausi area school, maximum number 25 (drawn from the Chandausi area) period including examination 23 days. Assistant station masters and relieving assistant station masters instructed in:

General rules for working traffic.
Practical train passing.
Telegraph, theory of instruments.
Telegraph signalling (refresher work).

The accommodation for instruction provided consists of:—

The transportation traffic school, of which the most important feature is a complete 2½″ gauge model railway, operated by electrically driven locomotives controlled by signals, with ten stations of different types, complete with double and single line block instruments, interlocked lever frames, signals, switches, switch locking gear, etc.

The locomotive and car school, with apparatus for demonstrating the working of the vacuum brake and sanctioned models of locomotive fittings.

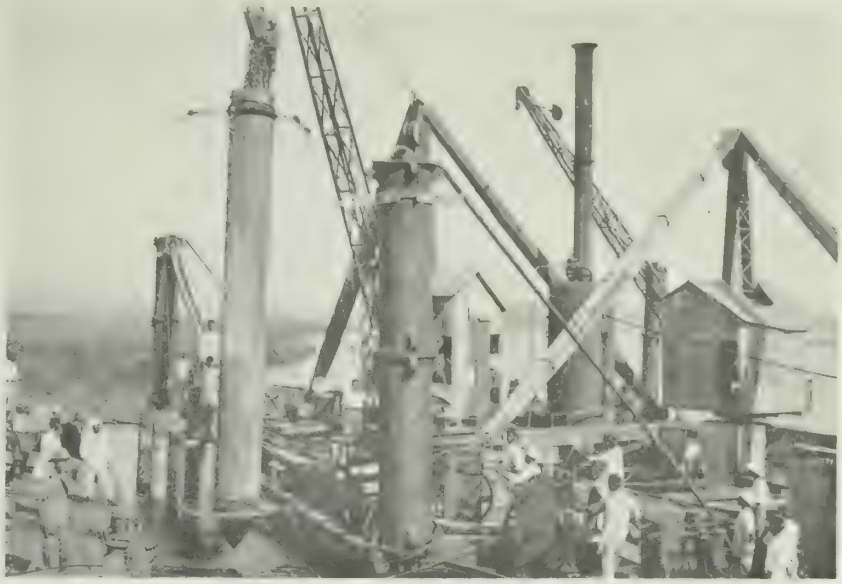
The commercial school.

The telegraph school complete with the necessary instruments, batteries, etc.

The school grounds cover nearly a hundred acres with lodgings for senior and junior students, messes, recreation grounds, etc. Tennis, cricket and football are provided and it is hoped soon to have a small golf course. Provision is also made for washing clothes and disinfecting. There is a school dispensary and submedical officer under the supervision of the civil surgeon, Moradabad, 28 miles away.

The arrangement under which men from several railways come together at Chandausi has been found of considerable value, promoting healthful competition and interchange of ideas. The students are extremely keen, and while lecture hours as a rule do not exceed four a day, most of the students put in also many hours daily of private study in order successfully to grapple with the examinations at the end of each course. A minimum of 66 per cent is required and the percentage of failures is small.

For the new officers' school Dehra Dun has been selected. The railway board has selected an excellent site in Dehra for the school covering about 100 acres, with every facility in the way of electrical power, water, drainage and sanitation.



Driving Piling for the Bombay, Baroda & Central India Ry., Which Runs for Many Miles on Bassein Bridges

The exact details of the scheme have not been fully worked out, but the intention is to provide for the preliminary training of probationary officers and, as in the army, to arrange that every important step in promotion should include, as one of the indispensable qualifications, a certificate to show that the candidate has passed the corresponding training school examination. The following courses will be arranged for:—

A 12 weeks course for first year probationary transportation and commercial officers.

An eight weeks course for second year probationary transportation and commercial officers.

A six weeks course for first year probationary engineering officers in transportation subjects.

A six weeks course for junior scale officers before promotion to the senior scale.

A four weeks course for senior scale officers before promotion to an administrative appointment.

A six weeks course for senior subordinates from whom it is proposed to select a definite proportion of officers.

A six weeks course for area school instructors.

In addition to the foregoing regular courses it is hoped to arrange at intervals for special courses, in rates, statistics, railway economics, accounts, signalling and interlocking, establishment and welfare, railway law, etc., according as experts in these subjects are available to lecture and officers can be assembled to take the courses.

It is believed the scheme will occupy the school fully throughout the year, except for a short period when it will be closed, principally to allow of a very necessary rest for the instructors.

The Dehra Dun scheme is not a cheap one. A preliminary approximate estimate puts the cost at over £135,000 but the desire and intention are to provide an institution worthy of the Indian Railways and of the very important work with which it will have to deal.

Government Ways in Belgium

After the state purchase (in Belgium) of rival lines and acquisition of a virtual monopoly, there seems to have been a diminution of activity and a tendency toward slackness of management. . . .

The railway budget is inextricably entangled with the state budget. In the selection of appointees to vacant places in the railway service, the government has opposed the competition of a well ordered civil service and has rather favored appointments from lists recommended by senators, deputies and priests.—W. M. W. Splawn, Former President, University of Texas.

Queer Happenings in July

ENGLAND'S "Twentieth Century Limited," the "Flying Scotsman," has just begun making the longest non-stop run in the world—the 392 miles between London and Edinburgh. Comfort, not speed, is the object, for the time remains at eight and a quarter hours. Heretofore there has been no way of changing crews without stopping the train, since it was held dangerous for two crews to occupy the cab at the same time. Special locomotive tenders solve that problem. At the end of 200 miles a fresh driver and fireman emerge from the first coach, go through a covered corridor or gangway along the right side of the tender, and take over the engine. The men relieved go back the same way and finish the trip as passengers.

You Can't Hurt a Plumber

Railroads have been defendants in so many damage lawsuits that the prospect of becoming a plaintiff—and against a motorist at that—holds a roseate tinge for the Chicago & North Western Ry. An automobile driven by Gilbert Anderson, a plumber, ran into a North Western freight train May 28, derailing six cars. The machine struck the slow moving freight with such force that the front trucks of one car left the tracks. Six cars followed before the train stopped. Railway officials said the damage would approach $6,000.

Anderson's car was demolished but he escaped injury. Representatives of the railroads said they are considering seeking damages.

This From Wall Street

A Topeka minister, traveling on one of the Santa Fe trains, was reading his Bible. "Find anything in that Book about the Santa Fe?" asked the conductor, as he reached for the minister's ticket. "Yes," replied the minister, "in the very first chapter it says that 'The Lord made every creeping thing.' "

Device to Save Fingers

The Transit Commission of New York has approved the purchase by the Interborough Rapid Transit of about $22,000 worth of gravity door checks, to be installed on nearly 2,000 subway cars. These devices will be attached to the tops of end doors and are designed to prevent the doors from slamming shut when the train takes a curve or lurches. The checks have been developed by the railroad company engineers.

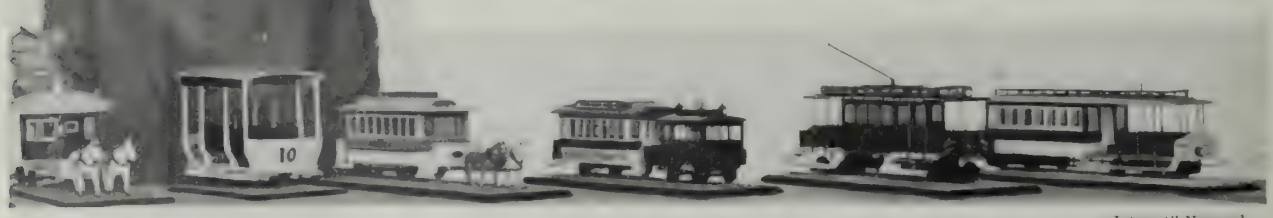
Objects to Birth Mark

Although an acrobat and eccentric dancer, F. C. Crabtree did not perform in his sleep, he declares in a suit filed in United States district court against the Oregon Short Line Railroad Co. and various associated companies.

He states in his complaint for damages that on March 28, last, he was traveling between Boise and Idaho Falls, and at 5:30 a.m. was more or less peacefully slumbering when the train slowed up suddenly on a sharp curve, causing him to be thrown from his berth. He states that his head struck the opposite upper berth rail and he fell to the floor.

As a result, he asserts, he received numerous bruises about the body and head and one in particular which developed into a "bump the size of a hen's egg" on the left side of his forehead. He said that, as a result, he is unable to practice his profession. He seeks $2500 actual and $10,000 additional damages.

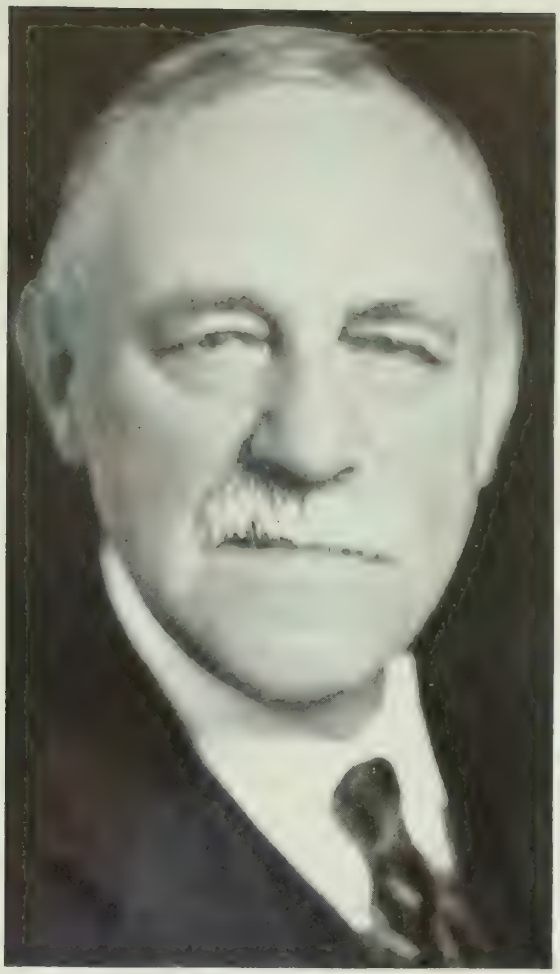
Do not waste your time on social questions. What is the matter with the poor is poverty. What is the matter with the rich is uselessness.—George Bernard Shaw.



—Internat'l Newsreel

Six Street Car Models of Old Timers Made by C. C. Collins of San Francisco, Now Displayed by the Market Street Ry.

Little Stories About Big Men



—Blank & Stoller Photo.

The Late Howard Elliott.

YOU don't get the human view of a man when you read merely the statistical record of his work after his death. More often than not this record is the very thing that hides the man's finest points. Certainly this was true of the late Howard Elliott whose death was reported in this magazine last month.

The real Howard Elliott was shown in a quiet way one day in Washington while testifying before the Interstate Commerce Commission respecting certain financial matters of the New Haven Railroad. He was explaining one point when a member of the commission asked: "Mr. Elliott, do you think that was right?" Mr. Elliott's reply was gentle, but it was forceful. "Mr. Commissioner," he replied, "if I had not thought it was right I would not have done it."

Mr. Elliott's career was not rich in material for the story writer except in a financial or administrative sense. He was not particularly good copy for the man looking for the usual recital of hard knocks, keen disappointments, the struggle for recognition, for an education. It is not recorded that he ever had to borrow a book to read by candlelight, that he ever was hungry in his life, or that the trials common to the youth and young manhood of many of the men described in these pages ever overwhelmed him.

But Howard Elliott did go through all the stages of railroad employment which fall to the engineering graduate. His parents were neither rich nor poor. From their New York home they sent him to Harvard. In earning his way upward after his college days he went through all the really hard jobs of the youngster beginning as a rodman, and they who have lived the experience of that field know it is no snap. It makes or it breaks a young man rather conclusively. Mr. Elliott served his apprenticeship in engineering on the Burlington; he held a job as a clerk for the vice president of that road; he had similar positions in the accounting department and with the auditor's office. He was at one time assistant general freight agent of four of the Burlington's subsidiaries, and later still became general manager. Indeed it would be unusual for a man to have had a more varied career in railroading. In addition to all these duties in transportation he found time to interest himself in many public affairs so that his qualities as a citizen were developed to a high degree rather exceptional in the field he had chosen to cultivate.

With the interesting story of his constructive work for the region through which the Northern Pacific ran, or the still more difficult assignment he accepted in rehabilitating the New Haven System, we are not here concerned. It is a fine thing to remember that in several instances he assumed burdensome responsibilities without thought of the monetary possibilities for himself. He never was seri-

Charles Donnelly, President, Northern Pacific Railway, Drove the Golden Spike at Brockway, Mont., One Day Last Month, Completing a 62-Mile Line Westward From Glendive. The Extension Cost $2,500,000. Ten Thousand Persons Participated in the Big Celebration. This Gives the Redwater Valley Its First Railroad.

ously concerned over the question of wealth to be acquired, and goodness knows he had the opportunity, in the early days of his career in the West, to feather his nest most comfortably if he had been that kind of man. He took over the New Haven at a time when few persons believed anything could be saved from the wreckage for the stockholders. It was a tremendous load and it nearly broke him down but he stuck to it to the last so that it may fairly be said his policies and plans saved the road.

There was a gentle side to Howard Elliott not widely known. To those not fortunate enough to know him intimately he was thought to be exclusive, "an aristocrat," a director once said of him. But nothing was farther from the truth. Howard Elliott was a gentleman. He performed great and serious duties in handling big properties, but never in a sensational way. He abhorred controversy. He had an abiding faith that without any display of heat on his part the truth was bound to be disclosed, and in a very large way this faith was justified. He had a large part in the heroic work of restoring all the railroads after the war period of federal control, and this service has well been called a national benefit.

Like other men holding similar positions Mr. Elliott was a pretty busy man most of the time, but it is pleasant to remember that these arduous duties never prevented his saying or doing thoughtful and beautiful things for others below him in point of position and power. His letters were a great delight to those fortunate enough to receive them. Quite often he wrote to men he did not know personally commending them for some service, a public address, a performance of some kind contributing to the public good or to a better understanding of the tiresome railroad problem. Some of these letters are treasures that encouraged the men to whom they were sent when encouragement was more important than money.

He had a kindly way. He was considerate of others. He never forgot a favor, and his friends were loyal to him. You couldn't say anything much about a man to surpass this. "Nothing can hurt you," he once wrote to a man engaged in public work for railroads, a man whom he had never met, "if only you have the conviction that you are doing the right thing. We have grown into the belief, I fear, that the public is forgetful and unappreciative. But this is not true. Once the public learns the truth about the railroads all the baseless criticisms of the politicians will be forgotten. Many of these politicians believe they are telling facts. Their environ-

Van Horne, the American Builder, Had the Look of An Evangelist, But Wait a Moment—.

ment has been against their recognizing truth when they hear it, but despite all that is said, this country is not controlled by politicans. The public and the railroads will yet be in real accord." Subsequent events, the building of sincerely cordial public relations in the last few years, show how well founded was this attitude.

Building the C. P. R.

Great events oft-times depend upon small happenings. The hiring of William Van Horne to build the C. P. R., came about through the flip of a coin. One day in September, 1877, George Stephen and Richard B. Angus, Scotch-Canadians representing the Bank of Montreal and the bondholders of certain railroad properties chanced to be in Chicago on business. Some silly legal tangle indicated a delay of several days, a circumstance as common then as now. Stephen wanted to put in the spare time visiting St. Louis, a sight he had never seen. Angus, doubtless more artistic in his temperament, opposed the idea, and suggested they go to St. Paul. "I want to see 'this man Hill'," he said, "he's always talking about a railroad he's building or going to build. Let's go up there and hear what he'll say."

So they flipped up a 25-cent piece to decide where they should go, and the coin said St. Paul. They went there, they traveled over Hill's project — destined later to be the Great Northern Railway — the St. Paul, Minneapolis & Manitoba. At this time Angus, Stephen, Sir John Macdonald, Donald Smith, and others were forming the great organization out of which was to come the Canadian Pacific Railway, and this, too, is a volume in itself. The point at which we are aiming right now is just this: The toss of a coin had brought George Stephen and James J. Hill together in friendly relationship. Stephen became the first president of the company organized to build the Canadian Pacific. Headquarters was established at Winnipeg, and operations started under the direction of A. B. Stickney who afterward became president of the Chicago Great Western, but when it became apparent that a man of great driving power was needed, Stephen turned naturally to James J. Hill for advice. Hill recommended William Van Horne.

"You need a man of great mental and physical power to carry this line through," said Hill. "Van Horne can do it. But he will take all the authority he gets and more, so you'd better define how much you want him to have."

The salary Stephen offered Van Horne was the largest ever given a railroad man in the West at that time. It had to be large. The risk was very real. No railroad man then stood higher than Van Horne in respect to the chances for future advancement; failure in the Canadian venture would mean something pretty near the end of his career. Before giving his answer, careful and wise as he was, Van Horne went quietly up to Winnipeg with Jim Hill and drove long distances over the plains to see the country for himself. He believed, basing his opinion on what he saw on that journey, that he would be undertaking the greatest railway project the world had ever known. Natural difficulties to be overcome were unparalleled. Probably nine men out of ten would have been dismayed. But Van Horne went back to Milwaukee and resigned. A few weeks later he went to the North to begin the great work.

The man who comes in from the outside, from some other road, to take the job you have been figuring on getting certainly has no soft snap. It takes much tolerance, a great deal of self-reliance, oceans of smooth temper to stick when you know you're not welcome.

Some of the biggest men in the railroad business today and some that have gone have had to live through snubs, sneers, cold shoulders, dirty looks. And still, it wasn't their fault that no one on the pay roll was competent to fill the place, a simple fact that seems never to seep into the boneheads who growl so much about not being promoted.

When William Van Horne was called from the Chicago & Alton to become general superintendent

F. D. Underwood, Then a Clerk at Milwaukee, Had No Objections to VanHorne As General Manager.

Driving the Last Spike in the Building of the Canadian Pacific Railway in Eagle Pass, November 7, 1885.

of the Milwaukee in 1879 he found himself in an atmosphere of unfriendliness, antagonism. The worst of it was that while Van Horne's title was general superintendent he really was general manager. No one doubted his ability as an executive, but the usual number of officials objected strenuously to his being put over their heads. Insubordination among the younger officials became rather common, and of course Van Horne didn't like it a bit. It hurt him too because he had a warm heart.

One day he stopped a young clerk, Frederick D. Underwood by name, and demanded just why he was prejudiced against him.

"Why," exclaimed the clerk, who was destined one day to be president of the Erie Railroad, "I'm not prejudiced; and, come to think of it, I've no reason to be against you at all."

It was months before Van Horne could feel that he had won the cordial support of his fellow officers, but eventually he did win them over. After a while they discovered that while he had a pretty lively temper Van Horne was fair to everyone, and that his outbursts invariably were directed against carelessness and stupidity. He had no use for a wavering man, and the way he landed on anything savoring of crookedness was a caution.

It would take more space than is available to tell the fine story of William Van Horne's development of the Milwaukee. Vaughn says in his "Life and Work" that he made a revolution in the operation of railroads and the cost of operating, and that railway presidents still practice the methods he introduced. For one thing he is credited with teaching the railway world how to load cars to their full capacity. Indeed it is said he made 800 cars do the work of 1,000 on the Milwaukee, and this is better than buying more equipment. Of course the engineers, as might be expected, did not welcome Van Horne's new methods. They loved their engines and hated to see them strained. They liked to run them and they didn't want anyone else at the throttle. But Van Horne ordered engines used to their full capacity, he wanted them turned and sent out with whatever drivers might be handy. Many a man went out again rather than let some one else take his engine over the division.

In history and in common conversation we speak of Van Horne as the builder of the Canadian Pacific Railway, just as we talk about Pershing or Napoleon or Grant "winning" their battles. These are the leaders without whom no great undertaking would succeed, no road be built, no conflict won. While engineers were spying out the land, finding the pass through the Rockies, struggling through floods, storms, snowslides, making the grades, the fills, laying the ties and the rails, Van Horne and his forces were fighting mountains of political opposition, finding the money, getting the materials and supplies and, having got them, overcoming almost insurmountable odds in getting them up to the front for the workers. Without the Pershings, the Wellingtons and the Grants great armies would be only mobs. Without Van Hornes and Harrimans and Hills railroads would never have been built.

Vanderbilt, the rough old commodore of a turbulent day, would have delighted in Van Horne's great work as a builder, but he would have found his chief joy in the battles at Ottawa when, at one time, Van Horne sat outside the doors of Parliament and waited all night for word that might mean the end of the C. P. R.; days and nights of heart-wrecking uncertainty when there wasn't money for the pay car, when bills couldn't be paid, when it seemed as if all the planning and all the labor of brain and brawn had been wasted. Every railroad president whose hands at some time have been tied for lack of money through the misdirection of some higher authority, governmental or otherwise, will feel a thrill of sympathy for leaders like Van Horne. No one else can understand it. To read the story, after forty years, is an experience certain to engender deep respect. But no one who has not lived such times can possibly realize what tragedy lies behind the calm recital.

The chilly reception Van Horne encountered when he went from the Alton to the Milwaukee was a wild and joyous ovation compared to the ice-bound welcome and the frigid stares that greeted him at Winnipeg. At Milwaukee he had to overcome a clannish personnel with a natural objection to an outsider. In Winnipeg he met a national antagonism which wasn't supposed to exist. Canadians and Englishmen don't stay up nights to love one another, but they had then, and doubtless still have a mutual antipathy for a "Yankee," and they joined gleefully in the work of making life a burden for the "Alien." The Opposition press went after Van Horne and the powers above him. A warm time was had. His blunt outspokenness jarred the nerves of men unacquainted with the vernacular of western railwaymen on our side the line. The civil engineers, especially, were ruffled. One of them, whom Van Horne declared to be the best locating engineer he had ever known, said of him:

> Van Horne was a great man with a gigantic intellect, a generous soul, and an enormous capacity both for food and work . . . but we did not like him when he first came up to Winnipeg as General Boss of Everybody and Everything. His ways were not our ways, and he did not hesitate to let us know what he thought of us. . . . At first he had little use for our Englishmen and Canadians, especially the engineers, and he told me once, "If I could only teach a sectionman to run a transit, I wouldn't have a single damn engineer about the place."

Mt. Aberdeen With Lake Louise Mirror. These Were the Gentle Slopes Through Which Van Horne and His Engineers and Workers Had to Build the Canadian Pacific Railway.

Van Horne, it has been declared was ruthless at times, but you hear this said about many big men with big jobs to be handled. They probably wouldn't have gone far toward success with Y. M. C. A. methods.

"If," he said, "you want anything done, name the day when it must be finished. If I order a thing done in a specified time and the man to whom I give that order says it is impossible to carry it out —then he must go."

Anything like inefficiency aroused his instant wrath, and he would dismiss out of hand all the employes in a yard where he found the traffic stupidly handled. The "Winnipeg Sun" reported such an incident in a bit of journalese typical of the time and place:

> Van Horne is calm and harmless-looking. So is a mule, and so is a buzzsaw. You don't know their true inwardness until you go up and feel them. To see Van Horne get out of the car and go softly up the platform you would think he was an evangelist on his way west to preach temperance to the mounted police. But you are soon undeceived. If you are within hearing distance, you will have more fun than you ever had in your life before.

The way the Canadians trimmed him was classical. In press and pamphlet they landed hard. Especially was he damned for having no Montreal antecedents. "A Mr. Hill of St. Paul" was responsible for introducing him to the syndicate, and Mr. Hill was sharply censured for bringing in with him men from the western states, "individuals who work after his school."

One critic found fault with the construction of the road, its bridge

work, grades and curves, and asked the public to remember that the company had dared to build a transcontinental line without a chief engineer. "It is a matter of notoriety that he is the one directing power of the operations on the ground—Mr. Van Horne whose experience has been that of a telegraph operator, freight clerk, conductor, and, I believe, general superintendent; who has never had the slightest experience in engineering duties, even in the humblest capacity."

Vaughan says in his wonderful book that Van Horne was too big and too busy to be much disturbed by the character of his reception. As the days slipped by, closer contact brought understanding which ripened into mutual respect and liking. His "amazing versatility and his knowledge — it seemed — of everything" won the admiration of his fellow workers; and in the end, his personality, with its heartiness, its swing, its magnetism, brought them irresistibly to a loyal and devoted acceptance of his leadership.

Shortly after his arrival in Winnipeg he went to Ottawa and Montreal and met the company's president and directors and other prominent Canadians. This visit saw the beginning of a close-knit, confidential, and abiding friendship between himself and Stephen. Thereafter these two men were to be the great force behind the enterprise.

Van Horne went to Canada and his new task at the end of December, 1881, and with him went one of his old superintendents John M. Egan, dead some years ago, well known and much beloved by many an old railroad man in this country. Egan became general superintendent of the western division of the C. P. R. Several other Milwaukee men were induced later to join their former chief, among them Tom Tait who, many years afterward, reorganized in a highly successful way the state railways of Victoria, Australia. A chap named Kelson went up as general storekeeper at Winnipeg. Then Van Horne discovered he needed a big man at Montreal to organize the supplies and commissariat for the army shortly to be in the field. For this important service his choice fell upon another of his Milwaukee associates, Thomas G. Shaughnessy, who was appointed general purchasing agent. By no means infallible in his choice of men, in this instance Van Horne builded, perhaps, better than he knew, for Shaughnessy was destined to become not only the first and the ablest of his lieutenants but, in the course of time, to succeed Van Horne himself in the control of the great transcontinental highway and to develop it to a magnitude and height of prosperity which few of its creators could possibly have foreseen.

This is not the place, unhappily, to tell the dramatic story of Van Horne's long struggle. We all know he won, and this must suffice at present. This side the line we have come to think of the building of the Union Pacific and our other great lines as material for folk tales, for stories that seem almost fantastic so seeped are they in drama and tragedy. Those marvels of accomplishment seem, sometimes, to shrink in comparison with the building of the Canadian Pacific. The construction was a job to try the souls of men, but it was play in contrast to the political chicanery, under-handedness, meanness, log-rolling we call it over here, with which Van Horne and his associates had to contend at Ottawa. This, too, is a history in itself.

There were times when almost anyone else would have thrown up the sponge or run up the white flag. Politicians floundered about as they do in this land of the free and obstructed Van Horne's work. He was invited to return to the United States and accept a presidency but he wouldn't stir from his job. He stuck. At first he was hated, but the day came, as usually it does for the valiant, when all Canada and England too blessed his name. The king did what he could, and kings can't do much. He made him Sir William which must have given this old time telegraph operator a great laugh in the quiet of his room.

Thanks to the motion picture industry Americans are familiar with the scenes accompanying "the driving of the last spike." In this case, cutting short a story of great dramatic interest, the men met as they did in the building of our transcontinental lines. After the years of struggle, moving across the land from both directions, the Pacific Coast and the Atlantic, the last remaining gap in the Canadian Pacific from the Selkirks westward was rapidly closed. On November 7, 1885, the tracklayers met at a spot in Eagle Pass between Sicamous and the slopes of the Gold Range, and here, in the presence of Van Horne, Sandford Fleming, James Ross, and several of the company's officers, and surrounded by workingmen, Donald Smith, always in the van, drove the last iron spike of the millions which linked Montreal with the Pacific Ocean.

"The last spike," Van Horne had said, "will be just as good an iron one as there is between Montreal and Vancouver, and anyone who wants to see it driven will have to pay full fare."

If you, Gentle Reader, or otherwise, are in the first years of your railroading you may not know the honored name of Van Horne. It should be a part of your education. He was born at Chelsea, Will County, Illinois. That is pretty close to Joliet, but not close enough to hurt. He got his first job as a telegraph operator for the Illinois Central in the office at Joliet. We're going to have our printer keep this sentence standing in type until further notice. "He started as a telegraph operator." Of all the 8,000 or more railroad executives in this country—but that's a story for another day.

Keeping Cars Clean for the Millions

3,000 Miles of Sheets

By Walter Raleigh

AN OLD piece of printed matter put out by the Pullman Company in its early days requested passengers not to go to bed with their boots on. Those were days when travel was still a hardship; sleeping cars were primitive. Few if any women braved the ordeal of a journey by night. The public knew only the day coach. To undress in a sleeping car was an astounding innovation. A comfortable night's rest on a train could not be imagined. And so the tired traveler took off the coat, but so often left on his boots when he climbed into his berth that the printed admonition seemed advisable.

Travelers no longer wear their boots in bed. Clean linen, fresh and immaculate, is as essential in the sleeping car as it is at home. To provide this unfailing supply for bed and toilet the Pullman Company carries in continuous use a supply of over 7,000,000 pieces.

There is the hand towel, for instance. Three million are required to dry the hands and faces of Pullman passengers. Each towel measures 17 by 28 inches, and if we let fancy play, and conceive this tremendous store of towels placed end to end we should find ourselves on a pathway nearly a foot and a half wide and 1325 miles in length, or almost the distance from New York to Kansas City.

Then there are two million sheets, each 62 by 98 inches in dimension. Laid out on the ground to sun they would cover an area of over three square miles; spread end to end they would reach from New York to Liverpool, three thousand miles at least. It is a conception to make the brain of the housewife reel; even the greatest hotels have nothing comparable.

Think of the white coats of the porters; 95,000 starched and cleanly jackets are required to clothe them. Enough jackets, these, for every man, woman and child in the busy manufacturing city of Utica.

There are other items, too, that baffle realization. One quarter of a million head rest covers are needed to keep fresh the seat backs. Ninety five thousand tidies serve the same purpose for the chairs in parlor cars. Fifty thousand napkins are used for buffet service, as well as 25,000 glass-towels, 20,000 table cloths, 15,000 dish towels, 8,000 aprons, 1,300 caps and 1,000 coats for cooks. And these latter items despite the fact that only buffet service is operated by the Pullman Company, not dining cars.

Of all this vast linen stock about one-half is carried on the cars. The remainder is held as a working reserve in the central and district storerooms. And what a problem this vast stock becomes when we consider not only its original purchase and distribution but the washing and mending it requires!

The Pullman traveling public too little realizes the marvel of the household comforts it enjoys, and too often, unhappily, is careless in the use of them. Pullman towels, for instance, rarely have a chance to wear out. There is the man, who after his morning shave, wipes his razor blade on a towel. If he did this at home his wife would jerk him out of his clothes with words this magazine doesn't care to contemplate.

Then there are towels that vanish into thin air; "lost" is the polite explanation of their disappearance. Thousands go in this fashion every year. Perhaps the careless and thoughtless traveler has wrapped his shoes in a towel, or has carried one off as a souvenir. But his integrity is never questioned, although the total cost to the Pullman Company amounts every year to many thousands of dollars.

Few travelers think of the immense totals of the various articles required to supply the minor comforts on Pullman cars. In 1923 more than three million paper bags were used to protect women's hats from dust and dirt. Three and a half million boxes of matches were used by smokers, and over 84,-

In the Pullman Company's Material Supply Yards at Pullman, Ill. Everything in Perfect Order, and Every Item Accounted for.

000,000 paper cups supplied as many sanitary drinks of pure water to thirsty passengers. Almost four million cakes of soap were used to wash nobody knows how many million pairs of hands, and as if this were not enough we must add over a hundred thousand gallons of liquid soap.

The existence of many of these minor articles often is scarcely realized by passengers. There is the fly-swatter, for instance; over 8,000 are bought yearly. More than 2,000 dust pans are purchased, not forgetting 43,000 mops and 13,000 buckets.

There isn't space enough in this edition to enumerate them all, but a few more examples will illustrate the variety of items in the list of articles issued for sleeping cars. There are drinking glasses, keys, jugs, sponges, coat hangers, vacuum cleaners, spirits of ammonia, padlocks, wrapping paper, lanterns! The variety is as amazing as the quantity.

Spring house cleaning is a yearly affair in the home; it is practically a weekly rite in the sleeping car, a most important factor in the Pullman housekeeping. The figures are staggering. Consider for a moment the castile soap used in a year. Over 52,000 four-pound bars were issued; placed perpendicularly end to end they would form a shaft five times the height of Pike's Peak, or 90 times the height of the Woolworth Tower. And in addition over 130,000 bars of kitchen soap were used.

But car cleaning required more than soap. Here is a list of materials used in a year:

347,640	deodorizer candles
39,446½	lbs. formaldehyde
2,997	gal. renovator
9 141	lbs. tripoli
41,548	lbs. oxalic acid
16,593	lbs. rags
494	lbs. lye
188,663½	lbs. waste
36,394	brooms
2,912	buckets
13,813	feather dusters
3,801	window cleaning sticks
2,340	gal. Pullman Standard-cleaner
560½	lbs. electric cleaner
41,014	lbs. metal polish and pomade
77,949½	lbs. whiting
8,781	lbs. permanganate potassium
6,071¼	yds. raw silk and cloth
20,026	lbs. pumice
754	seat beaters
12,445	brushes
4,989	pieces chamois
15,117	sponges
11,020	fumigators

Interesting statistics these, although hard to comprehend; and doubtless few of the 34,000,000 Pullman passengers carried every year give much or any thought to the marvelous system of car cleaning which these staggering figures indicate. A passenger boarding a Pullman expects it to be immaculate and gives no thought to the matter when he finds it so; the complications and extent of the task do not concern him.

But there are many men and women who are vitally concerned with the problem of Pullman cleanliness, and these are the 4,000 car cleaners who are occupied daily in cleaning Pullman cars in 382 yards in every section of the country. Their house cleaning is an unending task. Daily they scrub exteriors and interiors, floors and roofs; they polish steel work and silver and windows; they sweep up or blow out dirt and cinders, and with vacuum cleaners they clean seats, cushions and mattresses. And in addition it is worth mentioning that mattresses and blankets are spread out frequently in the open air to be sunned thoroughly.

Laundry is another factor in Pullman housekeeping. In one year various pieces to the number of 253,544,156 were washed at a cost of nearly $3,000,000. Much

of this work is done in laundries directly supervised by the Pullman management. The Pullman Company is the nation's greatest housekeeper, as the following figures showing the year's major purchases will demonstrate:

Sheets	385,785
Pillow Slips	700,901
Towels	1,199,297
Porters' White Coats	45,826
Tidies	49,751
Head Rest Covers	80,146
Buffet Table Cloths	11,890
Napkins	33,920
Blankets	11,109
Toilet Soap—Cakes	3,504,161
Toilet Soap—Gallons	122,501
Matches—Boxes	3,730,295
Toilet Paper—Rolls	809,198
Drinking Cups	93,434,850
First Aid Packages	62,679
Hat Bags	4,035,199
Hat Brushes	3,477
Tumblers	40,350
Miscellaneous	1,288,179

These supplies cost 4.23 cents for every passenger carried, when these records were made, an average daily cost of $3,970.97. They cost more now. The new sheets and towels averaged one for every 25 passengers. The value of housekeeping articles issued for service in a year, the latest available to this observer, was $1,453,376.56, equivalent to an average cost of $234 a car operated. Laundries washed 257,842,128 pieces of Pullman property during the year.

As a final touch we come to complete sanitation. At stated intervals every car is fumigated thoroughly with formaldehyde gas which renders the existence of germs and vermin an impossibility. To assure the regular fumigation of the cars, a complete bookkeeping system is kept which shows at a glance when every car was cleaned and fumigated, and the dates on which the electric system and the fire apparatus were tested.

To the passenger unfamiliar with the details of Pullman operation there may seem to be little dramatic evidence of the costly and tireless labor given unendingly to assure his comfort, health and convenience. Perhaps these few figures may give him a clearer comprehension. No more perfect organization could be imagined.

Pullman Co. Photo.

Pullman Linen Supply Department in the Chicago & North Western Yards, Chicago.

Not even the United States army or navy excels in point of sanitation. Of course, as might be expected in handling millions of human beings, some are bound to be entertained whose ideas of personal cleanliness are far from Henry Ward Beecher's conception of such things. You remember, doubtless, what he said about godliness. Under our present form of government passengers may not be inspected as at Ellis Island before entering the cars. Occasionally, therefore, one may have something on his person which is not, in good society, considered properly a part of a gentleman's possessions. If you took entomology in your college days you know the meaning of cimex lectularius. If you didn't we may be excused for indelicacy if we translate the words freely—bed bugs. They do appear upon rare occasions, very rare. If, perchance, you should be among those present upon such an unhappy night, remember it is not the company's fault. The cimex lectularius may have just arrived from Northern Italy.

Shipping Planes To Rio

A noted American pilot had an American pursuit plane delivered at Rio de Janeiro in the American steamer "West Cactus", from San Francisco recently, and this marked the first movement of American aircraft from the Pacific Coast ditectly to the east coast of South America. The plane will be used in making short fast flights and is equipped for catapulting from the deck of a steamer and for making deck landings. A flying boat and a combination mail, passenger and express plane are scheduled to follow the first one.

All through life, be sure you put your feet in the right place, and then stand firm. — Abraham Lincoln.

What the Papers Say

THAT the railroads have shown the ability of private management to meet grave industrial problems, by extricating themselves from the demoralization caused by war and making new records of efficiency, needed no pointing out. But too little public attention is given to the part played therein by the cooperative work of the regional boards of shippers and railroad men, which in curtailing car shortages alone have proved their value.

As our economic relationships grow more involved with our material growth, says Mr. Hoover, we must face the choice between government interference and "cooperation within industry." The railroads are showing the way, not only in their relations with shippers and their employes, but in the broader aspects of public relationship. Mr. Hoover might fairly have added that the war-forced experiment in government operation of industries—railroad, ships and some others—began our education in the need of that cooperation.—Newark News.

Railroads the Heart Nerves

Times and conditions change, mortals come and go, but certain things remain. The railroads will remain. The airplane and the automobile will never replace it for long hauls or heavy loads; nor will they ever be preferred by the mass of men as the means for long-distance travel. The commuter of the future will cling to the railroads as he does today. The reason should be obvious.

The railroad is the heart-nerve of civilization—the world's greatest and best civilization. It moves the food of the nations, the armies, the coal that drives the wheels of industry, the news and literature which feeds the intellects of men, the mail without which we could no longer do business or enjoy life in its more important aspects and relations. The railroads give service, and service is the only open road to mortal happiness.—Cincinnati Enquirer.

Good Service Appreciated

The improvement in railway service is as obvious to the public and to the shippers as it is gratifying to railway investors and operating officials.

After the war there was such a shortage of cars for handling the crops, especially wheat, as to cause serious loss to the carriers and to the farmers. But there has not been a car shortage worth mentioning anywhere in the country in years. The improvement is not due chiefly to the purchase of additional cars. It is largely due to greater efficiency in operation and to an intelligent distribution of cars with reference to impending need for them. — Kansas City Times.

Take Note, Young America

Many years ago the writer rode to Chicago and back in the cab of The Twentieth Century. Some eight or ten different engineers were at the throttle. We left the train at New York with the conviction that never had we met a finer body of public servants than these.

That trip was brought to mind by the affecting scene at the Hoboken Terminal of the Lackawanna Railroad, when his fellow workers presented a gold watch to 70-year-old "Ben" Locke as he was starting on his last run, at the close of 48 years of continuous service at the locomotive throttle. This doughty veteran, during that period had hauled his precious human freight for a total distance of some 3,000,000 miles, and this, according to the official record "without a single fatal accident." Says the official report, "never has he been reprimanded, or reported for laxity, insubordination, or impoliteness." Let the youth of America take note of "Ben" Locke.—Scientific American.

Railroad Valuations

It seems hardly fair to say that 1914 values must be used in 1927. No other line of business could live under such a handicap and there is no reason why railroads should have to submit to such a decision. Freight rates may be high and they do constitute a considerable item in the cost of existence but they are not as great a load as most people think. The nature of the service rendered seems to make it necessary that there be government control but that does not necessarily mean that the control is just. Sometimes there is more than appears on the surface and this is frequently the case in dealings with large corporations. Many freight rate adjustments are needed but there is no basis for a general statement that all rates are too high.—Pulaski (Va.) Southwest Times.

The Value of Safety

One has only to turn back to the newspaper files of the nineties to see how remarkably American railroads have developed safety in operating passenger trains . . . . There has been a revolution in appliances and equipment, and railroad managements have learned the value of safety.—Springfield (Mass.) Republican.

The finishing touch to friendship is often a loan.

Among the Men Who Do the Work

Part of the Big Crowd of Union Pacific Employes in the Incompleted Grandstand, Built Saturday Afternoons for Their Athletic Field. On the Ground, General Car Foreman Johnston, Supt. of Motive Power, J. F. Long, and Some one With a Megaphone.

NO BETTER demonstration of good-fellowship and real cooperation could be desired than that shown recently by the employes of the Union Pacific in the Los Angeles shops. The athletic association decided some time ago to have a proper field for the sports so popular among the men. This field the men graded and prepared. Then it seemed almost useless to have a field without a grandstand. Out went the S.O.S., and promptly the men began gathering and saving old lumber, second-hand material and things.

This was a good start, but still there were no funds to pay carpenters. Obviously, only one thing remained to be done, and that was to build the stand themselves. The photograph printed here shows what happened. Saturday afternoons the men went to work for themselves. One afternoon more than 200 reported for the job. They stuck to it, too, and not long ago the grandstand was finished, the product of every kind of employe, clerks, carmen, helpers, laborers, machinists, welders, boilermakers, carpenters, patternmakers, painters, blacksmiths, supervisors, and of course, J. F. Long, the superintendent of motive power, the man in the workclothes, threatening someone with a hammer. General Car Foreman Johnston was there, too, the man with the smile watching the work progress and seeing to it that everyone had something to eat occasionally. Walt Seare, Emil Frees, Harry Killingsworth and others of the athletic association had their hands full keeping the material coming, placing the men and describing the plans. Bill Jones, A. R. A., inspector, was official photographer and all round utility man. To have their own field and grandstand was a fine accomplishment, but to demonstrate their willingness to work together for a common purpose, giving up their holiday for that purpose, was something so valuable that one must hope the Union Pacific appraises it properly.

A Section Foreman's Art

Leaving a job as railroad section foreman to fight for his adopted country, Angelo de Martino contracted an illness that kept him hospital bound for six years and has left him determined to become an artist.

Martino, an inmate of the Naval Hospital, in Washington D. C., soon will become a student at Corcoran Art Gallery. He came to America in 1908. Ten years later, at the age of 22, he enlisted.

In France he fought in the Thirty-second Division. The rigors of life at the front affected his health and on his discharge from the army he entered the government hospital.

Martino picked up drawing to brighten the long days indoors. His first painting is now on display at the Allied Artists' Association. John P. Waring, a director, is financing the veteran's course.

Railroad Bands to Compete

By Marshall B. Craig

Fifty-four railroad bands will compete for supremacy September 29 and 30 at Des Moines, Iowa, in an international railroad athletic and band contest. In every part of the country employe bands on railroads having them are preparing for the trials. Reports received to the present show that 32 company bands on the Union Pacific are working every spare hour in preparation for the prelim-

inary test to be held August 26 and 27 at Boise, Idaho, when both bands and athletes will have their chance to show what they can do.

The first contest will be held in the morning of August 26, when the winning band from each of the railroads four units will be selected. The musical composition to be played by all bands will be von Suppe's overture, "Poet and Peasant." In the afternoon of August 26, a prize contest for three awards, $100, $75 and $50, will be participated in by bands not winning in first contest. The musical numbers will be von Suppe's overture "Light Cavalry," and Flotow's "Stradella."

The third contest will take place August 27, when the four winning unit bands will participate in the finals to select the official band to represent the Union Pacific System at the international contest in Des Moines in September.

Medals For 11 Railroad Heroes

"The saving of human lives at the risk of losing one's own is one of the greatest of human achievements," Patrick E. Crowley, president of the New York Central Lines, said one day last month when he awarded that railroad's annual medal of valor to one woman and ten men, all employes of the company, in the directors' room at 466 Lexington Avenue.

The recipients were presented to Mr. Crowley by W. J. Fripp, assistant vice president of the New York Central; H. M. Biscoe, vice president of the Boston & Albany; T. W. Evans, vice president of the Chicago Junction; H. A. Worcester, vice president of the Big Four, and D. D. Bronner, vice president of the Michigan Central.

Jessie C. Knight, of Mattoon, Ill., was the woman honored. On July 27 Miss Knight dashed to the tracks and snatched three small girls from the path of a train.

The men who received medals were Melvin B. Truax, Daniel C. James and William R. Stewart, of the Cincinnati Northern; Henry Nauman, of the Michigan Central; John P. Dunne, William E. Mulherin, Louis E. Lounsbery and James Ferrier, of the New York Central; Edwin S. Ballou, of the Boston & Albany, and Thomas E. Corrigan, of the Chicago River & Indiana.

Marshall B. Craig, for Many Years With the Chicago Great Western, Lately General Agent at Omaha, Now Director of Bands for the Los Angeles Public School System.

A Railroad Family

The service of one family to the New York Central totals 260 years, and the name is not Vanderbilt. An immigrant named Welch began digging in 1852 in helping to extend the road. Three of his six sons and grandsons are now active employes.

This Hill a Worker

Louis W. Hill, Jr., who started his study of the railroad business as a section hand, has been promoted to trainmaster of the Butte division of the Great Northern railway, with headquarters at Great Falls, Mont.

Young Hill is a grandson of the late James J. Hill, pioneer western railroad builder. Louis Hill, Sr., is chairman of the board of directors of the Great Northern.

Since serving as a section hand, Hill has held positions in various departments. Before coming to Great Falls he was trainmaster of the Cascade division of the Great Northern in Washington state. He is about 25 years old.

Safety First His Motto

T. N. Espinosa, a rancher, looked and listened, the other day, when he approached the railroad track near Woodland, Cal., but, of all things, he forgot to stop! As a result he smashed into the safety signal device, ripping down the wig-wag pole and demolishing the heavy concrete base. His car was wrecked, but Espinosa escaped with slight cuts and bruises. He told investigators he was so intent upon looking up and down the tracks for an approaching train that he did not see the safety signal. Can you beat it?

WHO MAKES THE RAILROAD?

L. W. Bohn

THE train dispatcher spends his days,
When traffic's smooth or in a haze,
  Arranging points for trains to meet,
And jotting figures on a sheet.
  He says, "It's Me; I am the brains
That keeps a-moving all these trains.
  I keep them going night and day
Upon the busy right of way.
  Without my will they cannot start;
I play a most important part.
  And so, as anyone can see,
The railroad most depends on Me."

Said the engineer while oiling round,
  "The dispatcher's sure a busy hound.
But it's Me who sits, eyes straight ahead
  A-watching signals green and red.
I am the guy," said the engineer,
  "Whose mind's alert and eye is clear,
Who watches out for precious lives
  Of children, sweethearts, husbands, wives.
I drive ahead through snow and storm
  In winter cold or summer warm.
I rather guess you'll all agree
  The railroad most depends on Me."

The fireman said to the engineer,
  "You may be right, but looky here,
Don't you forget, if you please, by heck,
  The boy down on the rollin' deck;
The boy who bends his weary back
  As she's a-reelin' down the track;
The boy who keeps her hot and poppin'
  Without restin', without stoppin'.
I'll tell the world, and it's no dream,
  I am the boy who makes the steam.
You can't deny it, no siree.
  The railroad most depends on Me."

The conductor smiled. "The engineer
  Is the works," said he, "or pretty near.
The fireman on the rolling deck,
  The dispatcher, too, I guess, by heck.
But trains all stop and stop dead still,
  And never move a wheel until

I give the signal with my hand,
'Cause I'm the boss, you understand?
And it's Me, the man in navy blue,
Who gathers up the revenue.
I'm captain of the ship!" said he.
"The railroad most depends on Me!"

The section boss, a'standing by
Said, with a twinkle in his eye,
"Let credit fall, where credit's due,
I disagree with all of you!
Now listen here," he said with pride,
"You're all important, 'Taint denied,
But who works out, in rain or shine,
A-keepin' up the old main line?
Who puts in ties and raises joints,
Tends the switches and lines the points?
You're all important, I'll agree,
But the railroad most depends on Me!"

The superintendent, happening by
Said, with a keen appraising eye,
"Each one is wrong, yet each is right.
You keep it going day and night,
But don't forget to bear in mind,
The other men, who stand behind.
The eager young, the gray and hoary,
Deny them not their bit of glory!
Each has his daily task to do,
And, less he does it well and true,
The road will suffer, I'll confess;
Co-operation spells success!"

—P&A Photo

President Crowley of the New York Central Presents Medals to Eleven Employes for Life-Saving. One Was a Woman, Jessie Knight, Who Saved Three Little Girls From Death.

50 Years a Dispatcher

We have heard a lot of stories about telegraphers, but having been through the mill ourselves we shy away from most of them as a yardmaster does when someone tells him about a miracle-worker on another line who made up a train in thirty minutes—without retarders. But here is a real, honest-to-goodness story vouched for by the records, a chap on the Canadian National Railways who has been dispatching trains for 47 years, a telegrapher for 60 continuous years: E. B. Fink is his name. What do you Fink of that for a record? The only part of the story that sticks in our craw says that the last day he worked at Winnipeg he sent 246 messages—the day he retired! As long as we're not at home we have a right to our opinion, but we don't intend to set it down here. Probably the dispatchers up there have no operators. We don't know. Then, too, he may have sent them by mail.

Mr. Fink began hammering his way through life in 1867. He has another claim to championship in telegraphy, however. The Canadian authority says that if the combined service of Fink and members of his family in railway telegraph work is added, the total exceeds an unbroken record of 160 years. This is divided as follows: Hiram Fink (father), 15 years; David Fink (broker), 50 years; Carl Fink (son), 15 years; a daughter 20 years; and his own service of 60 years.

Mr. Fink was born in Napanee, Ont., on August 30, 1852, and at the age of 15 he entered the service of the Grand Trunk Railway as an operator at Lyn, Ontario, where his father was agent. Within a year he was appointed relieving agent, between Brockville and Belleville, and later train despatcher, at Kingston. Because of ill health he moved to Eureka, Cal., where he secured employment with a private telegraph company and from there moved east to Ogden, Utah, to join the telegraph service of the Central Pacific Railroad. In 1881, he was back in Toronto as a train despatcher with the Grand Trunk Railway, but two years late went to Winnipeg as a dispatcher. In 1907, he joined the Canadian National Railways.

The Foreman Remembers

By J. F. L.

Yes, sir; I have been in the game for a long time and I have seen many changes in methods and in management. Some engine troubles were explained in many

ways, but the real answer always was, "search out the cause and apply the remedy."

You know if you called in a doctor and he began getting out a saw to cut off an arm or leg, well, he wouldn't get far with that method. But some men work out their troubles in a similar fashion; just dash ahead and try to fix it before they find out what's wrong.

I remember one place where I worked. They were applying tons of rod brasses. The boss said, one day, "I never saw the like of rods down on locomotives getting rod brasses." Well, that started me thinking and I set aside a gang on the drop-pit and began dropping the drivers and renewing driving box brasses, and right away I noticed a reduction in the number of rod brasses it was necessary to renew. The answer was simple. We were trying to run loose main driving box brasses and carry the load on the rods, and as a result the rod brass began to wear badly and pounded out quickly. After we got our main boxes in good shape we not only renewed fewer rod brasses, but we lost fewer grease plugs, rod keys, bolts, etc.

Then we had an epidemic of worn cylinder packing, worn cylinder heads, engines poorly lubricated, valves cut, cylinders scored, and we were doing some heavy thinking. In the end we interested our enginemen in using a drifting throttle when drifting. This circulation of steam prevented the lubricant from burning, and immediately there was an improvement generally.

Yes, sir; it pays to ferret out the cause and then work on the correction. An enginehouse foreman's job is a busy one. Conditions or situations change quickly. A man doesn't have much time to make decisions; he just has to act.

And, about the time he thinks, "Well, I got her on the downhill pull," some one says, "the fire builder has put a fire in engine 99 with no water in the boiler." How did we avoid a recurrence? Easy! Now we require two men to examine the water in the boiler and sign a book before a fire is put in the engine. No more burnt engines.

An enginehouse foreman must be a "fixer" and a "corrector." It's just his luck in the busiest part of the day to have an engine walk through the enginehouse wall or back off in the enginehouse pit. The funny part of it is that everyone is mystified, because the throttle was closed, the reverse lever was on center and the engine blocked, etc. Oh, yes! there is always an alibi, but the deed is done. How did we fix that? Simple! We put a 1¼ inch globe valve in the steam chest and that remains open when the engine is standing in the house, and the engine stays "put."

An enginehouse foreman's job is like that of a rear flagman on a train. The flagman must act always on the assumption that there is a train immediately following. The foreman must always expect an emergency and protect himself in a hundred ways.

Sure! A flue may burst at leaving time or a pump break down. When a train is called he should not only have the engine ready on time, but should have the next engine coming up well along so he could in an emergency substitute it for the one called.

Patience? Well, I should say. The enginehouse foreman is the fellow they all come to with their troubles, real and imaginary. But at that, it's an interesting position, and at night he has earned a rest and has no trouble coaxing sleep.

Watches Must Be Accurate

Keeping railroad trains on time requires more than 133 watches and 33 clocks to every hundred miles of line, according to S. A. Pope, supervisor of time service for the Southern Pacific.

"Nowhere," Pope said, "is the value of time more emphasized than in the transportation industry. The watches of 12,000 of our employes are subject to our time service requirements. All train and enginemen visit an official watch inspector twice a month, and watches are adjusted if they show a variation of 20 seconds or more from standard time.

"Many types of clocks are among the 3000 in service on our Pacific Lines. Fine marine clocks are in the pilot houses and engine rooms of our ferry and river steamers. Time clocks are in use in our offices and shops, watchman-clocks protect our property against fire and theft during hours of darkness.

"Without the guidance of fine watches and clocks a modern railroad would quickly be thrown from order and efficiency into the greatest of confusion, and it would become almost impossible to move the farm crops of the West to their distant eastern markets."

The Watchful Coppers

By R. C. Shimmin

As the two policemen seized the trembling wretch I joined the gaping crowd that surged forward. Anguished cries came from an office across the street where a murder was being committed. Four bandits were fleeing from a nearby bank which they had just robbed, after killing the cashier. A block away the postoffice was in flames. Panic-stricken citizens rushed here and there, mostly there. But the two policemen gave their whole attention to the prisoner.

He was a person of middle age, apparently respectable. He might have been mistaken for an ordinary business man. Now, clutched by the law, he shrank from the gaze of the crowd.

"An important capture," I thought. "I wonder what supercriminal is this, caught in the city streets on a pleasant summer afternoon."

I put the question to a bystander. "Sh!" he hissed, and then, stepping into a doorway so that no one might hear him, he whispered, "that man—" his voice shook with excitement, "that man overparked his car fifteen minutes."

Thirty-two Millions for a Terminal

South Philadelphia Improvement

By J. A. Sprague

THE Pennsylvania Railroad recently announced the beginning of a most important and far-reaching step in bringing to consummation the general scheme of improvements in South Philadelphia which are being progressively carried out under the agreement of 1914, made with the city, and to which the Philadelphia Belt Line Railroad and the Baltimore & Ohio Railroad are parties.

The project now initiated will be known as the Pennsylvania Railroad's "South Philadelphia Terminal Yard." It will include a new coal pier, two coal car dumpers, a coal supporting yard and thaw house, new ore handling facilities, two receiving yards, a merchandise classification yard, a classification and departure yard, and enginehouse facilities.

Contracts have been let for two coal car dumpers, the coal pier and the thaw house. The purpose of the latter is to facilitate the handling of coal in severe weather by quickly thawing out any that may be frozen in the cars.

The new coal pier, the two coal car dumpers and thaw house will replace the present Greenwich Piers and single car dumper, and will have approximately twice the capacity of the present piers for loading coal into vessels.

Construction work on the other facilities to be included in South Philadelphia Terminal Yard will be started following completion of very extensive fills necessary to raise the level of the entire tract a sufficient height above tidewater. The tract at present is chiefly meadow and marsh land. Material for the fills is being obtained by suction dredging from the Delaware River, which is being carried out in such manner that removal of the material required for the fills will at the same time provide a deep water channel to the new coal piers and suitable depth of water at the slips. Altogether about 5,000,000 cubic yards will be required to complete the fill.

The site of the South Philadelphia Terminal Yard, including all associated facilities, covers 295 acres. It begins at the bulkhead line on the Delaware River about 4,000 feet south of the present Greenwich coal piers, and stretches westward to Broad street at the entrance to League Island Navy Yard.

The land, piers and other railroad facilities east of Delaware avenue, comprising the present Greenwich terminal, will be sold to the City of Philadelphia under the terms of the agreement of 1914. It is planned to have the new coal facilities ready and in use by the end of the present year so that the sale of the Greenwich property can take place within that period.

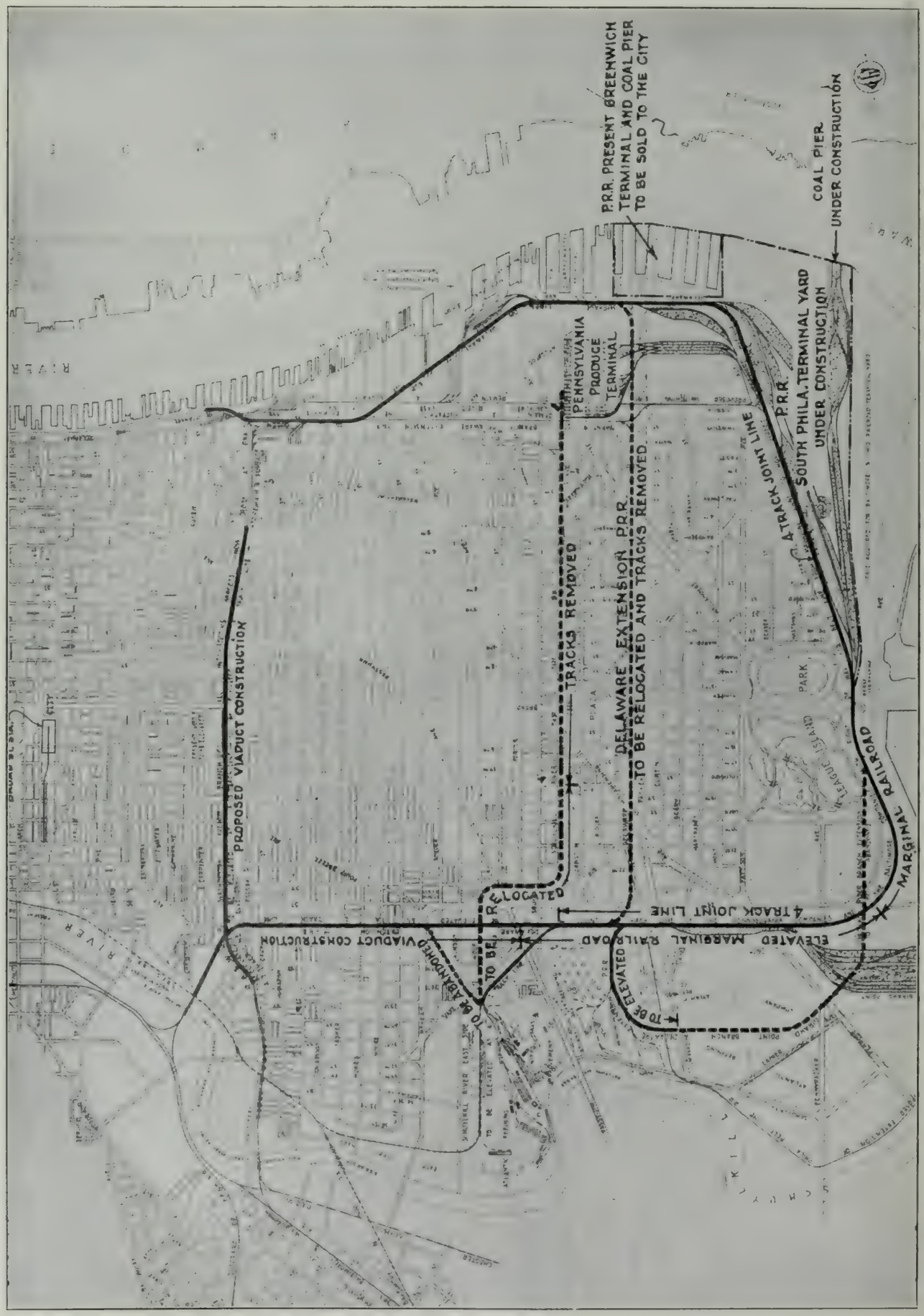
The purpose of transferring to the city title to the site of the Greenwich piers is to permit continuance of the general scheme of industrial and commercial developments in South Philadelphia by extending the system of municipal piers further southward along the Delaware River water front, and the completion of the work of widening and improving the lower portion of Delaware avenue.

The agreement of 1914 between the City of Philadelphia, the Pennsylvania Railroad, the Philadelphia Belt Line Railroad, and the Baltimore & Ohio had for its primary purpose the elimination of grade crossings in South Philadelphia by permitting removal of the transverse lines of the Pennsylvania and Baltimore & Ohio between the Schuylkill and the Delaware River and south of Christian street. To accomplish this a marginal railroad of four tracks is under construction by the two railroad companies jointly. Each will own two tracks side by side, with a separate right of way adjacent for the future construction of two Philadelphia Belt Line tracks.

The marginal railroad, known as the "Joint Four Track Line," extends southward on the line of 25th street from Oregon avenue to Penrose avenue, thence completely across the extreme southern portion of the city just north of League Island Navy Yard to Delaware avenue, from which point it extends northward on Delaware avenue to a junction with the existing Belt Line and Pennsylvania Railroad tracks.

The present tracks of the Pennsylvania Railroad on 25th street are being elevated on a reinforced concrete viaduct over the bed of the street from Washington avenue to Passyunk avenue, a distance of 1.3 miles. The tracks will be completed on this viaduct this year and the crossing of 12 streets at grade will be eliminated. The street below the viaduct will be open for general traffic, including a location for a double line of street cars. South of Passyunk avenue the elevated railroad is being continued on an embankment, with street undergrade crossings at suitable intervals.

South Philadelphia Terminal Yard will be an exclusive facility of the Pennsylvania Railroad but will be operated in connection with the Pennsylvania Railroad's portion of the marginal railroad.


P.R.R. PRESENT GREENWICH TERMINAL AND COAL PIER TO BE SOLD TO THE CITY
COAL PIER UNDER CONSTRUCTION
PENNSYLVANIA PRODUCE TERMINAL
4 TRACK JOINT LINE
P.R.R.
SOUTH PHILA. TERMINAL YARD UNDER CONSTRUCTION
DELAWARE EXTENSION P.R.R.
TO BE RELOCATED AND TRACKS REMOVED
TRACKS REMOVED
PROPOSED VIADUCT CONSTRUCTION
MARGINAL RAILROAD
4 TRACK JOINT LINE
ELEVATED MARGINAL RAILROAD
TO BE ELEVATED
TO BE RELOCATED
TO BE ABANDONED
VIADUCT CONSTRUCTION
RIVER
RIVER
PARK

Multiple-Unit Train on the Philadelphia-Paoli Division of the Pennsylvania Railroad.

In connection with the construction of South Philadelphia Terminal Yard, the Pennsylvania Railroad is also engaged in an extensive rearrangement of the track and yard facilities serving the Girard Point grain elevator, and for this purpose has acquired title to the property formerly known as Point Breeze Driving Park, which has not been operated for several years. The site of the park, with other property owned by the Pennsylvania Railroad will provide the space for the new yards and tracks serving the elevator.

Since the execution of the agreement of 1914, the Pennsylvania Railroad has spent approximately $13,000,000 on the South Philadelphia improvements. These expenditures chiefly represent new facilities required to replace those which must be abandoned in order to make possible the carrying out of the grade crossing elimination program in the southern section of the city. This program is being financed jointly by the railroad companies and the city. The work yet remaining to be done, including construction of the new South Philadelphia Terminal Yard, will involve ultimate additional expenditures by the Pennsylvania Railroad totaling approximately $20,000,000. These expenditures, however, will be extended over a period of years in accordance with business conditions and the further growth in traffic requirements.

The new South Philadelphia Terminal Yard, including all of its component parts, will be one of the most extensive railroad facilities ever constructed. It will have a total capacity of 8,500 cars, and its coal handling facilities will be capable of loading 30,000 tons of coal daily into vessels for export or coastwise water trans-shipment. It is expected that these new facilities will add very materially to the prestige of Philadelphia as one of the leading coal ports of America.

Another extensive project in connection with the general plan of South Philadelphia improvements involves entire reconstruction of the supporting yard for the new Pennsylvania Produce Terminal opened last summer at Oregon and Delaware avenues. The Produce Terminal is at present served from the line of the Pennsylvania Railroad tracks extending across the city just north of Packer avenue which are to be removed entirely upon completion of the marginal railroad. The new supporting yard, consisting of 65 tracks, having a capacity of 1,800 cars, will be placed south of the terminal and will be served from the marginal railroad. It will be so arranged as to harmonize with the general scheme of railroad rearrangement in South Philadelphia, and the plans of the city, and of private enterprise for the industrial and commercial development of the entire section.

The News of the Month

What's Been Going on in Transportation, Railroads, Automotive, Supply, Aviation

THE FIRST air and rail passenger service in the United States, which will be a link in the unit connecting New York with the Pacific Coast in a 48-hour system of transportation, will start on or about August 15 it was announced a few days ago by Colonel Paul Henderson, vice president and general manager of the Transcontinental Air, Inc. This first branch will connect the East and the Northwest.

The airplanes on the first air-rail branch to be opened will leave Minneapolis and St. Paul as the northern terminals and Chicago as the southern terminus. The railroads involved in the new service are the Great Northern, the Northern Pacific and the Milwaukee in the northwest territory and the Pennsylvania Railroad in the East.

The flight from Chicago to the Twin Cities will be the connecting link via air tying together the service of the Pennsylvania and the northern carriers.

According to the first air and rail time card, westbound planes will leave Chicago daily immediately after the arrival there of Pennsylvania Manhattan Limited at 2:05 p.m., and will arrive in St. Paul and Minneapolis approximately three and one-half hours later, making connections with west and northwest bound trains leaving the Twin Cities at night over the Northern Pacific, the Great Northern and the Milwaukee.

The eastbound schedule provides for the departure from the Twin Cities of passenger-carrying planes after the early morning arrival of trains from the northwest, the planes to arrive in Chicago in time to connect with the Broadway Limited on the Pennsylvania Railroad.

Reservations for seats in the airplanes will be made just as Pullman reservations are now made.

What, No Profits?

One of the outstanding features of the plan of the railroads to handle the nation's $300,000,000 annual express business through a new company, to be known as the Railway Express Agency, Inc., is that the new company will not operate at a profit, but will merely act as the agent for the 85 carriers. This was learned after executives had had an opportunity to peruse the report and plan, mailed by the uniform contract committee of the Association of Railway Executives.

The plan to make the new company merely a wholly-owned agency gives the railroads the right to deal directly with the Interstate Commerce Commission regarding all rate questions.

The plan calls for a 25-year contract between the new company and the carriers. It is pointed out that the new concern could be financed over night and that in view of the 25-year contract, funds for acquisition of the express business could be secured through a note issue maturing in ten or twenty-five years. There would be sufficient funds in transit to help the new company materially as money was needed.

The new contract to be made by the carriers would not be materially different from the one under which they are now operating with the American Railway Express Company. Provision is made under the contract to add motor and air service to the railway facilities. This would be done with the consent of the roads in various sections.

The physical property of the American Railway Express Co., including real estate, is valued at around $28,000,000 to $30,000,000. It is held that the book value of the stock is around $100 a share and that a value of around $110 a share would include the cash of about $20,000,000 in the company's treasury.

The four agents appointed to act for the carriers are given broad powers in dealing with the express company. If stock of the express company can be acquired at a reasonable figure for the entire 100 per cent, negotiations could be immediately begun, but no plan to acquire only a part of the capital, leaving a minority interest, would be consummated.

The Western Pacific Grows

The Western Pacific Railroad Co. has incorporated the Western Pacific California Railroad Co., a wholly owned subsidiary with capital of $15,000,000, to build 174 miles of railroad in California, at approximate cost of $13,500,000. The plans provide for 25-mile line from San Francisco to Redwood City, eventually to be connected with the main line of the Western Pacific at Niles, giving direct all-rail access to San Francisco and serving an important industrial area. This line will cost $3,700,000. A 138-mile extension will be built from Nile Garden south of Stockton on the main line to Kings River, south of Fresno, estimated to cost $8,500,000 with ultimate projection of line in Bakersfield; also 7½-mile extension of Holland branch of the Sacramento Northern, now under construction, to Ryde in the Sacramento River delta area; also a 3½-mile branch from Brack on the main line, north of Stockton, into the vineyard area. The program is the largest railway construction project in California since the Western Pacific was built 18 years ago.

Increase in Mail Pay for Railroads

Increased compensation of about $15,000,000 a year for trunk line railroads transporting mail for the postoffice department has been ordered in a majority decision of the Interstate Commerce Commission.

In addition, a retroactive provision making the increases effective from July, 1925, gave the carriers about $45,000,000 in back pay.

The new rates average about 15 per cent a year over the old rates with a minimum of $72 a mile for any trunk road regularly carrying mail.

Union Pacific Wins Again

For the third time in four years the E. H. Harriman memorial gold medal "for the most conspicuous organized safety and prevention work" on American railroads has been won by the Union Pacific, according to announcement by Arthur Williams, president of the American Museum of Safety in New York. The award is made annually by the museum and the one just announced is for 1927.

Cross Atlantic Soon In 20 Hours

Completion of tests on the model of a seaplane designed to carry 60 passengers across the North Atlantic Ocean in 20 hours was announced July 31 by O'Connor Trans-Atlantic Airways, Inc.

Present plans call for construction work to begin immediately with the probability that the first plane will be completed in four months.

The proposed plane is the invention of John P. O'Connor of New York. It will have a wing spread of 160 feet and will weigh 70,000 pounds under full load. Its power plant will consist of eight air-cooled motors, two of which will be held in reserve. Entirely new principles in structural design are to be used, Mr.

O'Connor said, which "will make possible the carrying of the large fuel load necessary to cross the ocean and at the same time to carry pay loads."

In the event of unexpected motor trouble and a forced landing, it was said, the finished plane will be every way seaworthy—even in a severe North Atlantic storm.

Freight Terminals for Jersey City

Freight terminal developments estimated to cost $70,000,000 are planned by the Lackawanna, Erie and Pennsylvania railroads in Jersey City, John Milton, special counsel for the Lackawanna Railroad, and John L. Seager, an associate counsel, disclosed before the Jersey City Commission at the weekly meeting of that body.

The Lackawanna Railroad, they said, was to build a series of warehouses on six square blocks bounded by Henderson street, Hersey avenue, Sixteenth and Eighteenth streets, to cost $15,000,000. The Erie Railroad was completing a series of warehouses near its Jersey City terminal at a cost of $25,000,000, according to Mayor Frank Hague. A third development, a Pennsylvania Railroad pier at the foot of Morgan street, at a cost of $2,500,000, was planned. The fourth development, Mr. Milton said, was a $25,000,000 project, but until plans were completed the principals must remain unnamed.

Fast Movement in May

The daily average movement per freight car for May was 31.2 miles. This exceeded by one mile the best previous average for any May, which was attained in May 1927, and was 1.4 miles greater than the average for May 1926, says the bureau of railway economics. In computing the average daily movement account is taken of all freight cars in service, including cars in transit, cars in process of being loaded and unloaded, cars undergoing or awaiting repairs, and cars on side tracks for which no load is immediately available.

The average car load in May was 26.3 tons, including less than carload lot freight as well as carload freight. This was a decrease of six-tenths of a ton under the same month last year and one-half a ton below May 1926.

Available Cars Decreasing

Class I railroads had 314,605 surplus freight cars in good repair and immediately available for service July 15, the car service division of the American Railway Association reports. This was a decrease of 17,712 cars compared with July 8 when there were 332,317 cars. Surplus coal cars on July 15 totaled 114,364, a decrease of 2,157 cars within about a week while surplus box cars totaled 151,426, a decrease of 13,287 for the same period. Reports also showed 23,617 surplus stock cars, a decrease of 1,667 cars under the number reported on July 8, while surplus refrigerator cars totaled 15,765, a decrease of 740 for the same period.

Wot a Life!

When Addison H. Day climbed aboard the 7:24 train on the Lackawanna Railroad at Chatham, N. J., Wednesday morning, August 1, he began his sixtieth year as a commuter on that railroad between Chatham and New York City. Mr. Day said there were no express trains when he began commuting. "A mail train which stopped at the Oranges," said he, "was the nearest thing to an express that we had. The cars were lighted by kerosene lamps and had wood-burning stoves. The engines also burned wood. I have watched the growth of the railroad as well as the amazing growth of the towns along it. The Lackawanna has been good to me—in all that time I never have been in an accident that was worth talking about."

During that period, Mr. Day has travelled approximately 850,000 miles going to and from has office and home. He will be 87 years old in November.

J. J. Esch to Practice Law

J. J. Esch, who retired recently as a member of the Interstate Commerce Commission, is now associated with a new law firm, Esch, Kerr, Newton & Shipe, for general practice before the departments and commissions at Washington.

To Rebuild Yreka Line

With the sale of the Yreka railroad in July to the Klamath River Holding Co. reconditioning of the road with an expenditure of $160,000, it was said would begin within a month. The extension of the line to Happy Camp in Western Siskiyou, 108 miles, will be advanced as fast as possible at an approximate expenditure of between $10,000,000 and $12,000,000.

Great wealth lies in Western Siskiyou, consisting of copper, iron ore, timber and agricultural resources. The projection of the road into Scott valley will tap 125,000 acres of fertile land.

At the conclusion of the transfer, the board of directors of the Yreka Railroad resigned and the Klamath River Holding Co. elected H. A. Devaux, director and president; J. D. Gavin, director; vice-president and superintendent; J. W. Suffecool, director and treasurer; O. G. Steele, director and secretary; W. R. Fontaine, construction engineer and director. W. E. Plank was elected chief engineer.

I. C. Leases Air Rights

Air rights covering two of Illinois Central's 24 blocks near the Loop in Chicago have been leased for 100 years for construction of what is expected to be the largest and tallest building in the world, to be known as the Apparel Manufacturers Mart. This is the first of several building projects contemplated for the Illinois Central air rights in Chicago, the area of which is double that of the New York Central Railroad at 42nd street in New York.

The air rights lease calls for enough ground space to erect caissons, and all the space above. The railroad retains the use of the ground space not occupied by caissons and in addition controls the five sub-basements. The road will have tracks on the lower level for the direct handling of all products of the apparel industry within the building. The general contract calls for completion within 15 months from the start of actual work. The building should be ready for tenants by April 1, 1930.

Boston & Maine's Program

Improvements to Boston & Maine roadway, equipment and other facilities, already made and in immediate prospect, call for expenditures in 1928 aggregating $16,000,000, it was stated by J. W. Smith, general manager, reporting for the Boston & Maine at the meeting of the New England Shippers Advisory Board.

Citing the new car-retarder freight yards of the Boston & Maine at Boston and at Mechanicville, N. Y., Mr. Smith detailed other improvements which he said would further increase Boston & Maine efficiencies in freight handling made possible by these yards.

They Aren't Private Cars

Commissioner McManamy, in a report to the I. C. C., has advised that body that a study of private car movements during the last three years has disclosed wasteful and unlawful movement on a large scale. He recommended that the commission forbid one railroad from moving a private car for another road except at regular charges, thus abolishing the system by which such cars are moved free when off their home lines.

The report declared that the practice of transporting persons other than railroad employes in private passenger cars at the same rates charged passengers provided only with ordinary coach accommodations constituted an unjust discrimination and likewise should be prohibited

Improvements to Cost 21 Millions

The board of directors of the Chesapeake & Ohio has authorized the expenditure of $21,144,724 in an improvement program throughout the system, involving additional shops and facilities.

President W. J. Harahan said that the major portion of the expenditure will go to Huntington, W. Va., and vicinity, where the board contemplates an expenditure of $9,635,000. The program includes $3,500,000 for extension of the locomotive repair shops at Huntington; $235,000 for an extension of a hospital, and $9,500,000 for additional main line tracks.

Motor Transport Congress in Rome

The Fifth World Motor Transport Congress will be held in Rome, Italy, from September 25 to September 29.

The first three congresses were held in the United States under the auspices of the National Automobile Chamber of Commerce; the fourth was held in London in November, 1927, under the auspices of the Society of Motor Manufacturers and Traders.

Net Ton Miles Lower

The volume of freight traffic handled by Class I railroads in the first five months of 1928 amounted to 186,546,774,000 net ton miles the bureau of railway economics reports. This was a decrease of 8,980,341,000 net ton miles or 4.6 per cent below the same period last year.

Railroads in the eastern district, for the five months period, reported a decrease of 8.9 per cent in the volume of traffic handled compared with the same period in 1927 while the southern district reported a decrease of 8.1 per cent. The western district reported an increase of 3.5 per ecnt.

The volume of freight handled by Class I railroads in May amounted tc 39,250,302,000 net ton miles, a decrease of 867,597,000 net ton miles or 2.2 per cent below May, 1927. In the eastern district, there was a decrease of 4.3 per cent compared with May, 1927 in the volume of freight traffic while the southern district showed a decrease of 9.9 per cent. The western district reported an increase of 4.3 per cent.

Class I railroads had a net railway operating income in May amounting to $88,179,013, which, for that month, was at the annual rate of return of 4.71 per cent on property investment, according to reports filed by the carriers with the bureau of railway economics. In May, 1927, their net railway operating income was $86,007,707 or 4.70 per cent on their property investment. Property investment is the value of road and equipment as shown by the books of the railways, including materials, supplies and cash. The net railway operating income is what is left after the payment of operating expenses, taxes and equipment rentals but before interest and other fixed charges are paid. This compilation as to earnings in May is based on reports from 185 Class I roads representing a mileage of 239,822.

Gross operating revenues for May were $510,714,148 compared with $519,569,844 in May, 1927, a decrease of 1.7 per cent. Operating expenses in May totaled $381,836,287 compared with $391,555,475 in May, 1927, a decrease of 2.5 per cent.

Class I roads paid $30,757,178 in taxes in May, a decrease of 4.5 per cent under May, 1927. This brought the total tax bill for the first five months in 1928 to $150,325,150, a decrease of $2,921,633 or 1.9 per cent below the same period in 1927.

Twenty eight Class I roads operated at a loss in May of which nine were in the eastern, five in the southern and 14 in the western district.

Class I railroads for the first five months in 1928 had a net railway operating income of $376,027,819 which was at the annual rate of return of 4.41 per cent on property investment. During the same period last year the net railway operating income was $385,045,081 or 4.62 per cent on their property investment.

Gross operating revenues for the first five months in 1928 were $2,404,382,639 compared with $2,507,487,897 during the same period in 1927 or a decrease of 4.1 per cent. Operating expenses for the first five months period of 1928 were $1,830,579,871 compared with $1,922,290,226 during the same period a year ago, a decrease of 4.7 per cent.

Current American Shipbuilding

American shipyards were building July 1, or were under contract to build for private shipowners 396 steel vessels of 225,740 gross tons compared with 413 steel vessels of 223,147 gross tons on June 1, 1926, according to the bureau of navigation, department of commerce.

There were 87 wood vessels of 38,670 gross tons building or under contract to build for private shipowners during the same period compared with 85 wood vessels of 36,068 gross tons on June 1, 1928.

C & O Net Lower in June

Gross revenues, net railway operating income and net income of the Chesapeake & Ohio including the Sewell Valley and Greenbrier & Eestern, for the month of June, 1928, were: Gross revenues $10,114,644, a decrease of $1,162,129 under June last year; operating expenses were $6,773,457, a decrease of $936,601, compared with June last year; net railway operating income $2,956,986, a decrease of $54,522 under June last year. The net income after all charges for June 1928 was $2,347,833, a decrease of $76,456, under June last year. The operating ratio is 67.0 per cent compared with 68.4 per cent for June last year, or a decrease of 1.4 per cent.

Canadian Nationals Big Construction Program

A statement issued by H. A. Dixon, chief engineer, Canadian National Railways, indicates that grading of the 424 miles of branch lines authorized by parliament in 1927 will be practically completed by the end of the year. On the completion of the grading, there will be no delay in the work of track laying, and 300 miles of main line will be laid during the coming season. In addition to completely rehabilitating the Hudson Bay line from The Pas to Mile 356 completing of the divisional yard at Mile 327 and further permanent facilities, grading, track laying and ballasting will be in progress on the Fort Churchill extension. The programme on the latter calls for completion of grading of 94 miles for the season. All buildings will be constructed by the Canadian National forces, excepting the station to be erected at The Pas.

The largest track re-laying program ever undertaken in the region in any one year has been planned for the lines already in operation. Four hundred and thirty miles will be relaid with 100-pound rail and 103 miles with 85-pound rail. This work is mainly in the Manitoba and Saskatchewan districts. To cope with increasing business, yard trackage will be installed at important terminals, aggregating 10 miles. In the general improvement of track, a considerable mileage will be tie-plated and a large number of rail anchors will be installed. Approximately 1,500,000 cubic yards of ballast will be put under the track in maintaining and improving the roadbed. At Vancouver, the filling and grading of False Creek, in accordance with the agreement with the city, will be undertaken. The large bridge filling undertaken at Lyons Creek, B. C., necessitating 1,000,000 cubic yards which has been in progress since 1925, will be completed this year, with the placing of 261,000 cubic yards.

During the present year, the 8,000,000 gallon reservoir and gravity supply at Pedley, Alberta, partly constructed in 1927, will be completed, as will the 85,000,000 gallon reservoir and pumping

supply at Kelso, Sask., which will operate during the summer. New water supplies are being considered for Medicine Lodge, Alberta, and Mattes, Sask., and new pipe line installations at Redditt, Ont., and Mainford, Alta.

Buildings along the new lines include a 300-ton coaling plant at Hudson Bay Junction, and 100-ton coaling plants at Madstead and Sturgis, Sask. Erection of stations, section foreman's dwellings, bunkhouses, tool houses, loading platforms, and stockpens will follow quickly the progress of track construction. Commencement will be made early in the summer on the Weyburn-Radville line, where three section dwellings, three bunkhouses, three tool houses, two freight and passenger shelters and a stockpen will be erected; and on the Turtleford South East Line, where three third class stations, six freight and passenger shelters, eight section dwellings, 9 loading platforms, 8 bunkhouses and 8 toolhouses will be built. A number of wells will be installed and permanent water supplies will be constructed at Willow Bunch, Medstead, Sask., Mile 38 Shellbrook Westerby Branch, Mile 36 and Mile 66 Sturgis-Peesane Branch, Mile 80 Turtleford-Speers Branch, Mile 29 Spruce Lake West Branch and Mile 32 Ashmont-Bonnyville Branch.

Bolivia Rail Contract

The Bolivian government has awarded a railroad construction contract to a firm of American engineers, Kennedy & Carey, New York. The construction of the railroad has long been under consideration, since it will be a link between the high plateau section of Bolivia and the fertile Amazon Valley between which there has been no railroad communication.

The railroad going from Cochabamba to Santa Cruz, approximately 300 miles, will represent an investment by the government of $35,000,000, funds for which come from the proceeds of a loan placed in the United States in 1927.

The contract awarded is that for the construction of the first section of the new railroad, from Cochabamba to Aiquile, approximately 100 miles. This section will bring the railroad from the plateau to the beginning of the Amazon plain. It is expected that construction will be started immediately.

Development Meeting at Houston in 1929

Houston will be the convention city in 1929 for the American Railway Development Association according to dispatches. J. I. McGregor, agricultural agent of the Southern Pacific Lines, and D. C. Pace, industrial agent of the Missouri Pacific presented the invitation at the Miami convention to hold the next convention at Houston. This association is composed of the agricultural, industrial, and publicity departments of all American railroads. It is expected that fifteen hundred people will attend the convention.

The March of Progress Hurts Sometimes

"More than 8,300,000 head of live stock were delivered in motor trucks to 18 live stock centers in 1927," said C. D. Morris of the Western Railways' Committee on Public Relations, Chicago, in an address before the Commercial Club of Carroll, Ill. "These figures were compiled by the Corn Belt Farm Dailies, published at the packing centers throughout the West, and do not take into account the many thousand head of live stock delivered by truck to the smaller markets or direct to the packers.

"It would have required 141,602 single deck freight cars to handle this live stock had it been delivered by rail, as it would have been delivered a few years ago. It is estimated that western railroads are losing from eight to ten million dollars in freight revenues annually in the live stock industry alone, a loss that is growing larger every year.

"The tremendous development of the trucking business has been occasioned by the extensive building of hard surfaced highways in recent years. These highways now connect almost every rural county in the Central West with some live stock center, making the delivery of stock at the market place possible in all kinds of weather. The average distance traveled by each truck in the delivery of this live stock was about 44 miles, which average distance is becoming greater every year as our hard surfaced highways are being extended."

Prizes for Air Race Winners

Increase in prize money and trophies bringing the total value of the awards in excess of $200,000 has just been announced by the executive committee of the National Air Races and Aeronautical Exposition, scheduled for September 8 to 16, inclusive, in Los Angeles.

The California Air Race Association, sponsor of the meet, under sanction from the National Aeronautic Association, has offered $125,000 in cash prizes. The 17 control cities through which contesting pilots in the New York to Los Angeles air derbies will fly, have added materially to this figure with substantial cash lap prizes and valuable trophies. The remainder of the prize money is made up of cash awards and trophies put up by individuals and business firms interested in the advancement of aviation in America and all the world.

Recent confirmation from Miss Elizabeth C. P. Miller, wealthy aviation enthusiast of Cleveland, O., of her intention to offer $5000 in cash and a valuable silver trophy from Tiffany's as special awards for the transcontinental air races, places her at the top of the individual donors. The $200,000 figure more than triples any prize list before offered for an aeronautical event, and is evidence, suggest officials in charge, of the magnitude of the September race meeting.

The 17 control cities to offer cooperation and prize awards for the New York to Los Angeles races are Harrisburg, Pa.; McKeesport, Pa.; Columbus, O.; Terre Haute, Ind.; St. Louis, Mo.; Kansas City, Mo.; Wichita, Kan.; Oklahoma City, Okla.; Fort Worth, Abilene, Midland, Pecos and El Paso, Texas; Lordsburg, N. M.; Tucson and Yuma, Arizona; and the finish, Los Angeles.

The 3500 inquiries for entry blanks already received indicate an active participation in the meet of 1500 airplanes and more than 500 pilots and aviation technicians. The prize list is practically evenly divided between the transcontinental, Pan-American, Canadian and California state derbies, and the program of closed-course races and special events to feature the nine-day meet. More than 400 manufacturers of aviation equipment are expected to exhibit at the exposition.

I. C. C. Motion Overruled

A special federal court of three judges has overruled a motion by counsel for the Interstate Commerce Commission for dismissal of a petition of Georgia and North Carolina manufacturers for an injunction to restrain operation of alleged discriminatory rates on 65 railroads. The rates complained of were to have gone into effect on the roads between the Rocky Mountains and the Atlantic seaboard on July 8 but were stayed by injunction proceedings. Blackburn Esterline, counsel for the commission argued the petitioning manufacturers erred in bringing their action into federal court instead of going before the commission. Counsel for the shippers charged alleged discrimination gave them recourse in the courts. As a result of the order, the hearing on the merits of the rates in question proceeded, with the government and the Interstate Commerce Commission and 10 of the 65 railroads represented by council.

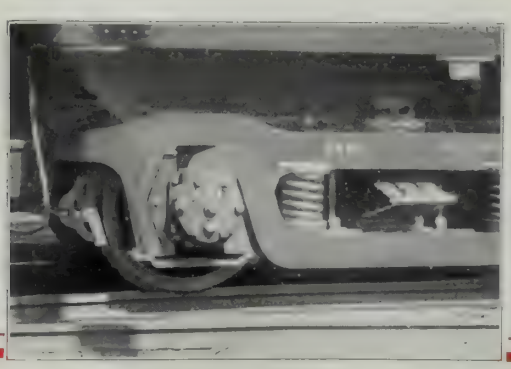
Maggard Gets the Petaluma & Santa Rosa

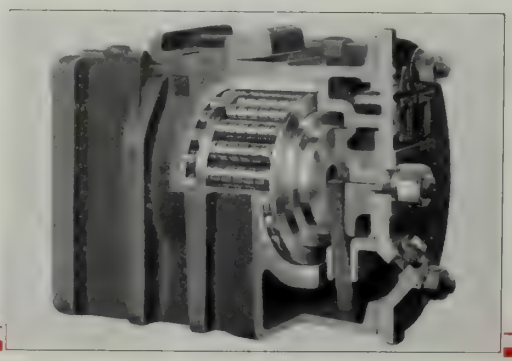
Edward H. Maggard, president of the Northwestern Pacific Railroad, has ac-

PLEASURE and comfort . . . . "the water level route, you can sleep" . . . . "the best of everything in the best of the West" . . . . "the aristocrats of the rails" . . . . "the will to please" . . . . are some of the inducements offered by leading railroads to the traveling public.

Prominent railroads everywhere must attract passengers thus, for Service is the factor that sells more rides. And now there is added another inducement—Hyatt Roller Bearing equipped cars.

Hyatt Roller Bearing Journal Boxes help railroads sell more rides through the assurance of more comfortable riding qualities . . . . . for the Hyattway is the comfort way.





BUT more comfortable riding is not the only advantage that Hyatt Roller Bearing Journal Boxes bring to railroads so equipped. There are many more Hyatt attributes in the way of installation and operating economies.

Hyatt Roller Bearings and boxes as shown in the opposite illustrations can be used on existing equipment as well as new. They fit A. R. A. standard pedestals without change to a single truck part.

A booklet, "What the railroad man should know about anti-friction bearings" has been prepared and it will be sent upon request to any railroad executive.

HYATT ROLLER BEARING COMPANY

Newark Detroit Chicago Pittsburgh Oakland

HYATT

ROLLER BEARINGS

PRODUCT OF GENERAL MOTORS

quired full control of Petaluma & Santa Rosa R. R. for $1,500,000.

This is regarded as a step by Southern Pacific and Santa Fe, which own the Northwestern Pacific jointly, to block efforts by Western Pacific to purchase the Petaluma line and built a link of about 40 miles to connect it with the present properties. The Western Pacific made overtures for the road when Maggard was president. Subsequently, when rehabilitation of the Northwestern Pacific was undertaken Maggard was made head of that road.

Now The Air Taxi

Plans have just been completed for the first air and bus service between Baltimore and cities and towns on the eastern shore of Maryland. The Chesapeake Aircraft Corpn. and the Red Star Motor Coaches, Inc., are the joint operators of the new line.

Fairchild cabin planes accommodating four passengers will be used in the daily passenger and freight service from Logan Field to Tolchester, Md. At Tolchester the service will be continued by fleets of buses to all cities and towns on the eastern shore.

The charge will be $10 a passenger and the taxi planes will make the trip directly across the bay, shortening the time of ferry service by approximately two hours.

Major William G. Tipton, head of the Chesapeake Aircraft Corpn., in commenting on the new system said:

"Anyone desiring to get to the eastern shore in a hurry need only call Logan Field and ask for an air taxi. Within 20 minutes the plane will be at its destination, and if the service warrants we hope to establish a commercial line for merchandise and freight. Buses will be waiting at Tolchester for passengers flying across the bay. No time will be lost in transportation, the buses averaging 40 miles an hour."

When calls are received for but one or two passengers, planes of the "traveler" type will be used instead of Fairchild cabin planes, Maj. Tipton said. These smaller planes accommodate two passengers and a pilot.

The planes will be capable of carrying a maximum load of 1500 pounds and will be operated by some of the best pilots in the East, Major Tipton said.

Western Air Travel

Western Air Express carried 839 passengers in June on its four regular lines, had eight special chartered trips and carried 586 paid passengers on short exhibition flights. The total number carried in June sets a new record.

While air mail bulk figures are released from the postoffice department in Washington it is indicated that the company set a new record in volume for the first six months and in addition carried a record amount of express and other paid matter. The number of miles flown also sets a new record, and passenger carrying is constantly increasing.

Monster Engines Pull Fast Trains

Nearly all of the order of the Model 3700 passenger locomotives, designed and built by the Baldwin Locomotive Works for the Santa Fe on the mountain divisions have been delivered and placed in service. These engines pull trains of 14 or more coaches from Winslow, Ariz. to La Junta, Colo., 637 miles without change except crews; also from Winslow to Clovis, N. M. a distance of 511 miles.

Wage Cut in England

An agreement has been reached in a conference between the railway managers and the railway union leaders under which all railway employes, including high officials and directors, will accept a reduction of 2½ per cent in wages.

Bus Merger in Texas

The railroad commission of Texas has authorized the Sunshine Bus Lines, Inc., to purchase and operate three other bus lines now in operation. The lines taken over in the merger are the Greenville to Terrell line owned by M. J. Anderson and F. M. Riley; the line from Greenville to Mineola owned by D. L. Crittendon; and the line from Dallas to Palestine owned by the Sunset Bus Lines.

Gas Tax Not Legal

The supreme court of Texas has handed down a decision here declaring that a one and one-half cent gasoline tax imposed by the city of Lubbock, Texas, is unconstitutional. The court ruled that cities and counties are barred by statute from collecting such occupational taxes. The decision was given on a test case when the Magnolia Petroleum Co. sued to establish invalidity of the tax.

Not So Much Stealing in 1927

Losses in 1927 due to robbery of freight while in transit on the railroads of this country were the smallest for any year since 1920. According to reports compiled by the protective section of the American Railway Association, robbery losses in 1927 amounted to $1,151,136, a decrease of $163,365 or nearly 12.4 per cent below 1926 and $11,575,811 below those for 1920, when robbery losses were the greatest for any one year in the history of the railroads.

Claims paid in 1927 due to loss of entire packages as a result of robbery amounted to $694,355, a decrease of $44,585 compared with 1926. Robbery losses due to theft from packages of freight taken while in transit amounted to $456,781, or a decrease compared with the year before of $118,780.

Lower Car Loadings

Loading of revenue freight for the week ended on July 28, totaled 1,033,976 cars, the car service division of the American Railway Association reports.

There was an increase of 160 cars over the preceding week, increases being reported over the week before in the loading of grain and grain products, coal and forest products. Merchandise less than car load freight, miscellaneous freight, live stock, coke and ore showed reductions under the week before.

The total for the week of July 28 was a decrease of 10,721 cars under the same week in 1927, and a decrease of 62,021 cars below the corresponding week two years ago.

Miscellaneous freight loading for the week totaled 408,283 cars, an increase of 7488 cars above the corresponding week last year and 9345 cars above the same week in 1926.

Air-Rail Freight Service in Switzerland

Cooperative railway and air freight service in Switzerland was provided for in an agreement signed last March by the Swiss Federal Railways and the Basel Air Traffic Corpn. on its own behalf and on behalf of the other air traffic companies licensed in Switzerland. The air lines are empowered to issue through bills of lading for merchandise from stations in Switzerland to foreign air ports and vice versa, by air and rail, and also from one foreign airport to another in transit by rail through Switzerland. The bills of lading will stipulate what portion of the journey is to be covered by air and what portion by rail. Merchandise received by the railways from air lines will be transported as express to insure prompt delivery.

Grade Crossing Accidents Increasing

Persons killed in highway grade crossing accidents in the first four months this year totaled 697, or an increase of 28, compared with the same period last year, according to a compilation made from reports just filed by the railroads with the Interstate Commerce Commission. For the four months' period this year, 1,826 highway grade crossing accidents were reported, compared with 1,746 for the same period in 1927, or an increase of 80. Persons injured in such

accidents totaled 2,073 or an increase of 74, compared with the first four months in 1927. In April this year, 180 persons were killed in highway grade crossing accidents, or an average of six persons daily.

Sargent on Air Lines

Fred W. Sargent, president of the Chicago & North Western, believes the possibilities of air-rail travel to be one of the main issues before the railroads. Another is the purchase of new model gas-electric cars to take the place of trains on branch lines.

"We are making an intensive study of the airplane and its possibilities," said Mr. Sargent. "The North Western is going to utilize the air because the airplane has a permanent and safe place in our transportation system. Railroads will combine their rail lines with air travel by day and train travel by night, thus reducing the time of travel by fully 50 per cent. The North Western has not reached any conclusion as to just how this program will be carried out, but it is coming. The steam railroad, however, will be the backbone of our transportation system for a long time to come."

Mr. Sargent said it would not be long before branch line trains will be eliminated. He said the road had successfully tested the new gas-electric cars with twin motors. He declared long haul passenger traffic was gaining, while the railway passenger loss was mainly on short hauls, which largely would be eliminated by the gas-electric coaches.

Mr. Sargent urged middle western roads and the people of the middle west to fight the advantage the East and the Pacific Coast have by reason of the low rates on the Panama Canal route.

Frisco Acquires Several Lines

The Interstate Commerce Commission has authorized The St. Louis & San Francisco Ry. to acquire and operate the Kansas City, Fort Scott & Memphis, the Kansas City, Memphis & Birmingham, the Kansas City, Clinton & Springfield, the Muscle Shoals, Birmingham & Pensacola and the Kansas City & Memphis Railway & Bridge Company. The Frisco now controls these companies by stock ownership and operates all of them except the Muscle Shoals line. Considerations to be paid are in the form of liabilities to be assumed. Application for necessary authority is pending before the commission.

Forthcoming Meetings

Aug. 21-22—International Railroad Master Blacksmiths' Association, Chicago, Ill. W. J. Mayer, Michigan Central Rd., Detroit, Mich.

Sept. 12-14—American Railway Tool Foremen's Association, Chicago, Ill. G. G. Macina, C.M. & St. P. Ry., 11402 Calumet avenue, Chicago, Ill.

Sept. 18-21—International Railway General Foremen's Association, Chicago, Ill. Wm. Hall, 1061 West Wabash avenue, Winona, Minn.

Sept. 11-13—American Railway Association Equipment Painting Section, Montreal. V. R. Hawthorne, 431 South Dearborn street, Chicago, Ill.

Sept. 11-13—Railway Car Department Officers' Association, St. Louis, Mo. A. S. Sternberg, Belt Ry. of Chicago, Polk and Dearborn streets, Chicago, Ill.

Sept. 18-20—Roadmasters' and Maintenance of Way Association, Detroit, Mich. T. F. Donahoe, General Supervisor Road, Baltimore & Ohio Rd., Pittsburgh, Pa.

Sept. 18-20—Telegraph and Telephone Section, American Railway Association, San Francisco, Cal. W. A. Fairbanks, 30 Vesey street, New York, N. Y.

Sept. 22-28—American Electric Railway Association, Cleveland, O. J. W.

Applying the Yardstick

YOU may not know much about freight cars, and yet what they cost you and how efficiently they serve you are important factors in your economic existence.

Every stitch of clothing on your back, every bit of material in your home, and nearly every mouthful of food that goes into your mouth has been carried at some time or other by the humble freight car. For carrying these innumerable burdens the freight car takes, on an average, only about $43 annually from the pocketbook of each citizen.

The test of freight car efficiency is the number of miles it can travel, and the weight of the load it can carry in a given length of time. Judged by this yardstick freight car efficiency has reached high levels.

Seven years ago America's freight cars moved, on an average, little more than 20 miles a day. Last year Southern Pacific's Pacific Lines freight cars averaged 39 miles each day. These figures include empties, cars awaiting loads, or being switched, and cars awaiting and undergoing repairs. Meanwhile the average carrying capacity of new Southern Pacific freight cars has been increased by six tons.

By building or buying a new freight car every two and one-half hours during the last five years Southern Pacific has practically insured its patrons against serious car shortages, so costly in other years, and is keeping abreast of the growing demands of the West.

SOUTHERN PACIFIC

Welsh, 292 Madison avenue, New York, N. Y.

Sept. 25-28 — Travelling Engineers' Association, Chicago, Ill. W. O. Thompson, General Superintendent, Rolling Stock, New York Central Lines, Buffalo.

But State Ownership Was a Failure

When in September, 1926, Belgium stabilized her currency, the state railways were handed over for 75 years to a national company called the National Railway Co. The first report of operation covering 16 months from September 1, 1926, to the end of 1927, showed a net profit of 594,000,000 francs, whereas the lines were worked at a deficit by the state. Of this amount 270,000,000 went to the state as divided on ordinary shares and 270,000,000 as extra dividend on preference shares, 28,000,000 accruing to the personnel and 26,000,000 carried forward. The company started with a working fund of 58,000,000, lent by the state, but has been able to pay off this loan.

The report describes in detail the economics effected in administration and operation, which, combined with heavy traffic, have enabled it to make so good a showing. Of 109,000 employes, 12,000 have been dismissed. The operating ratio is 82.34 per cent.

New Superheater Catalog

The Superheater Company, 17 East 42nd street, New York, has issued a new catalog describing the Elesco Superheater for power plants. The book is written in the light of engineering efforts toward increasing fuel economy here and abroad. Every phase of superheat is discussed, also the requirements for proper superheater design and how they are carried out in the Elesco design. Practically every make and type of boiler with an Elesco superheater is illustrated and explained. For the busy man it gives the high points on superheated steam. For those who wish to study the subject more thoroughly it goes into greater detail. Convenient guides to the text, and superheater and boiler illustrations are given in the front of the book. An industrial superheater information sheet will be found at the back. Copies may be had by applying to the company at the address given.

Railway Construction

Tracks and Yards

CALIFORNIA.—The Southern Pacific has asked for permission to construct a six-mile line connecting its road in San Jose with its line near Lick Station, and to abandon a mile of its line on Fourth street, San Jose, which the new construction will supersede.

—The Western Pacific-California, a subsidiary of the Western Pacific, has asked for permission to construct a 25-mile line from San Francisco to Redwood; a 138-mile line from Nilegarden to Kings River by way of Fresno, including 12-mile trackage rights over the Tidewater Southern, and a 3½-mile branch from Brack to a point beyond Boyce Road.

CANADA.—The Canadian Pacific has started construction of the 20-mile extension from Breton to the Thorsley district, on the Lacombe & North Western, purchased from the Alberta government this spring. The C. P. R. has let a contract to W. A. Dutton, Winnipeg, for grading a 70-mile extension between Willingdon, Alta., and Strathcona. Stewart & Cameron, Winnipeg, has a contract for grading a 13-mile line from San Francisco to the Lacombe & Northwestern extension.

FLORIDA.—The Atlantic Coast Line has requested authority to construct an eight-mile extension from Clewiston to a point on the west bank of the Miami Canal.

LOUISIANA.—The Gulf & Sabine has asked for permission to abandon six miles from Nitram to Fullerton, since the section does not pay operating expenses.

MISSOURI.—The Frisco has asked permission to construct a 20-mile line from Gideon to Dering, and an 11-mile extension from Hornersville to Leachville, Ark.

NEBRASKA.—The Missouri Pacific expects to spend considerable sums during the summer low water season in the Missouri River Valley for protection of roadbed and tracks against floods. About $150,000 has been appropriated for work immediately adjacent to Nebraska. The work will include modern methods combining bank paving, riprapping, mud cells and mattress uses.

—The Burlington is considering the possibility of connecting its lines at Bridgeport and Cheyenne, Wyo., by a road built up the Pumpkin Creek Valley from Bridgeport to Harrisburg, and then to La Grange, it is reported.

VIRGINIA.—The Chesapeake Western has permission to abandon the five miles of its line extending from Mount Solon to North River Gap, Augusta county.

—The state corporation commission has granted a charter to the Virginia Central to construct a line from Orange to Fredericksburg and thence down the Northern Neck.

WEST VIRGINIA.—The Virginian has permission to construct a 41-mile line from a connection with the Guyandot Valley division to a connection with the Chesapeake & Ohio at Gilbert.

—The Guyandot & Tug River, subsidiary of the Norfolk & Western, has permission to construct a portion of its proposed line from Gilbert to Wharncliffe in Wyoming and Mingo counties.

WYOMING.—Construction is completed over 20 miles at each end of the Union Pacific's new cutoff, 125 miles in length, from the North Platte Valley branch at Creighton to the main line at Egbert. Stations have been established and trains put in operation. The work will be finished by November 1.

—See Nebraska.

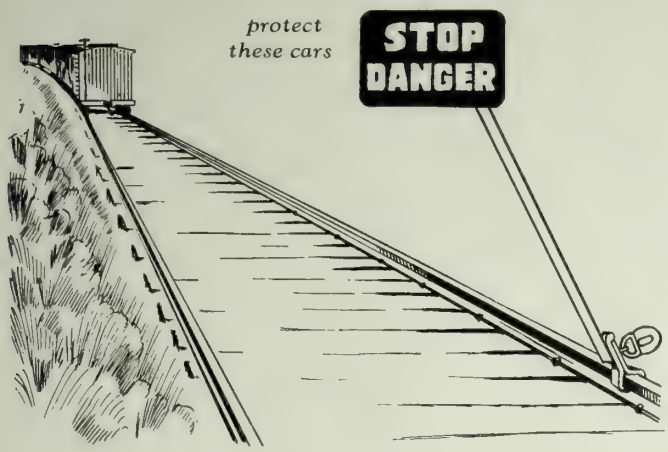
Buildings and Structures

CANADA. — Toronto. The Toronto Terminals Co. has let a contract to P. Lyall & Sons Const. Co., Montreal, for a 696 by 55-foot, four-story express and office building for the Canadian National here.

COLORADO. — Denver. Roberts & Schaefer has a contract from the Colorado & Southern for a two-track, "N. & W." type electric cinder plant.

INDIANA.—South Bend. The Walsh Construction Co., Davenport, has a contract from the New York, Chicago & St. Louis for an 85 by 180-foot, three-story passenger station to be used by this company and the New York Central. The building is to be of reinforced concrete, brick, steel and stone and will cost about $500,000.

MISSOURI.—St. Louis. Dwight P. Robinson & Co., New York, has the contract from the Terminal Railroad Assn., for the enlargement and improvement of the Union station. It is reported that Twentieth street, south of Market street, will be vacated by the city in return for the dedication to public use of a similar strip of land and the contribution of $150,000 toward the cost of constructing a viaduct to carry Clark avenue over the new station train sheds. The association has a permit from the city to build an $850,000 express ware-



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BLUE SAFETY FLAGS

We are all working for a 35% reduction in accidents by 1930

These Blue Safety Flags will help you to accomplish this on your railroad. Do not delay in placing your order for these. Ask for circular.

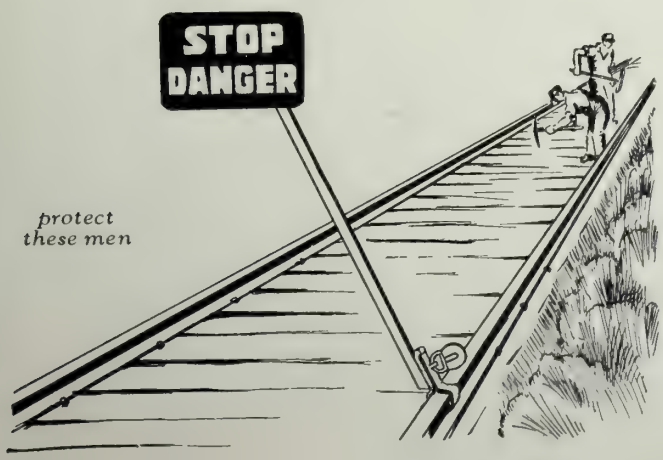
They lock to the rail and cannot be removed except by man having key.

No Accidents Today—

The Cheeriest Report of All

Louisville Frog & Switch Co.

Louisville, Kentucky



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This is a Briquette—weighs one pound and has a minimum of moisture. Doesn't it appeal to you over the usual run of compounds?

We make these Chemicals for you — based on an analysis of water used in your boilers.

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house and office building on this ground to have a four-story wing with outside dimensions of 220 by 70 feet and a two-story wing with outside dimensions of 700 by 70 feet. The cost of the station and facilities is estimated at about $4,500,000.

NEBRASKA.—Omaha. The Illinois Central, it is said, has let a contract for the erection of an 850,000-bushel grain elevator here to cost about $550,000. This is the second unit of a 4,000,000-bushel elevator it will build here. The road is changing its tracks at a cost of $50,000 to make room for the construction.

—Omaha. It is reported that the Burlington and the Union Pacific plan a union station here that will call for the expenditure of $3,000,000. Equal sums will be contributed by the Burlington and the U. P., with smaller roads contributing their share. The Burlington station is two blocks from the present Union station, but the plans call for a reconstruction of buildings and tracks so that the two structures may be jointly used, along with present intervening tracks.

OHIO.—Cleveland. It is reported that the officials of the Wheeling & Lake Erie will sign an agreement with Van Swerengen interests for entering the new union station here. The Wheeling station on Ontario street will be raised to make way for the terminal.

—Toledo. The Hocking Valley, it is said, has let contracts for a new yard costing $2,000,000 on 80 acres purchased adjacent to the Walbridge yards, to include 25 miles of additional track to handle 2,000 cars. The road also will be double tracked between here and Longley to give it a double track to Columbus to tie in with the new double-tracked line finished a year ago connecting the Hocking Valley and the C. & O.

PENNSYLVANIA.—North Philadelphia. The Reading began the new $2,000,000 station here August 1.

Locomotive Orders

According to the A.R.A. Class 1 railroads placed in service 795 locomotives in the first half of 1928. Compared with the corresponding period last year this was a decrease of 245, and a decrease of 322 compared with the same period in 1926. Locomotives on order July 1, this year, totaled 106 compared with 237 on the same date last year and 646 on the same date in 1926.

Locomotives in need of repair on July 15 totaled 8,586 or 14.4 per cent of the number on line, 8.2 per cent in need of classified repairs and 6.2 per cent in need of running repairs. This was an increase of 580 locomotives compared with the number on July 1. Serviceable locomotives in storage July 15 totaled 7,040 compared with 7,117 on July 1.

Several large inquiries have been made since the July issue. The New York Central is in the market for 55 locomotives and the Argentine State Railroads for 60 locomotives. Other inquiries include those of the Buenos Aires & Pacific (Argentine) for eight Mikados; Hu Len Hei Lun, China, five Mikados; Alaska Railroad, one Mikado; Delaware & Hudson, one Decapod; Union Railroad Co., two tenders.

Orders placed include the following: Manila Railroad, four Mikados with Baldwin; Colombia Railway & Navigation Co., South America, one consolidation type with the American Locomotive Co.; International Railways of Central America, two Mikados with Baldwin; Denkmann Lumber Co., one Mikado with the American Locomotive Co.; Illinois Central, one oil-electric locomotive with Ingersoll-Rand Co. and General Electric Co.; F. C. Cochabama, Santa Cruz, two Mikados.

Passenger Car Orders

The outstanding order of the month is that of the Pennsylvania for 550 all steel refrigerator cars of new design, to be especially adapted to operation in passenger trains or in express trains operating on passenger schedules. The order was divided as follows: American Car & Foundry Co., 200 cars; Pressed Steel Car Co., 200 cars; Pullman Car & Mfg. Corpn., 100 cars and General American Car Corpn., 50 cars. The Canadian National ordered three baggage and mail cars from the American Car & Foundry Co.; the Chicago Great Western, three baggage and mail cars from Pullman Car & Mfg. Corpn.; Delaware Electric Power Co., Wilmington, ten new cars from J. G. Brill Co.; Dallas Railway & Terminal Co., 17 Peter Witt street cars from St. Louis Car Co. The Burlington will build 33 suburban passenger cars at its Aurora shops. The New York, Westchester & Boston Railway Co. has ordered 20 new passenger cars and proposes to convert five trailer cars into motor cars.

The Southern Pacific is inquiring for four gas electric rail motor cars; Northern Pacific, one business car; Omaha, four gas electric rail motor cars; Chilean State Railways, 20 coaches and six sleeping cars; Oklahoma Railway Co., from one to three pairs of passenger motor trucks.

Freight Car Orders

Freight cars placed in service in the first six months this year by the Class 1 railroads, according to reports filed with the A.R.A., totaled 29,717, a decrease of 8,324 compared with the corresponding period last year and a decrease of 23,865 compared with the same period in 1926. Freight cars installed in June totaled 7,449 compared with 7,790 in June last year. The railroads on July 1 had 14,659 freight cars on order compared with 23,279 on the same date last year and 37,253 on the same date in 1926.

The Cities Service Co. is inquiring for 10 tank cars of 12,000 gal. capacity; Missouri Pacific, 100 automobile cars; Nevada Consolidated Copper Co., 20 ore cars, and the Chesapeake & Ohio, 500 gondola car bodies.

Orders placed since the July issue of Transportation include the following: Chicago & Eastern Illinois, 100 automobile cars with the Mt. Vernon Car Mfg. Co.; American Cyanamid Co., New York, 25 covered hopper cars with General American Tank Car Corpn.; Paulista Railway, Brazil, 1000 freight cars with various builders; Erie Railroad, one air dump car with Clark Car Co. and one air dump car with Differential Steel Car Co.; U. S. Navy Dept., bureau of aeronautics, one tank car with General American Tank Car Corpn.; U. S. Navy, bureau of supplies and accounts, two gondola cars with Pressed Steel Car Co.; Cities Service Co., four tank cars with General American Tank Car Corpn.; Cincinnati, Hamilton & Dayton, six ballast cars with American Car & Foundry Co.; International Railways of Central America, 150 box cars with Gregg Co.; American Oil Co., Baltimore, one tank car with General American Tank Car Corpn.; Illinois Central, two air dump cars with Western Wheeled Scraper Co.; Barrett Co., 16 tank cars with General American Tank Car Corpn.; Rock Island, 10 air dump cars with Western Wheeled Scraper Co., and 250 gondola bodies with Ryan Car Co.; Lehigh & New England, three caboose cars with Pressed Steel Car Co.; Carnegie Steel Co., repairs on 16 hopper cars with Greenville Steel Car Co.; Fruit Growers Express 100 underframes for refrigerator cars with Pressed Steel Car Co., and 50 underframes with another unnamed maker.

Bus and Truck Orders

Orders and deliveries made since the July issue of this magazine include the following: Great Lakes Stages, Cleveland, two Twin parlor coaches; Groton & Stonington Traction Co., Guilford, Conn., ten Twin parlor coaches; Lang Transportation Co., Long Beach, Cal., two mechanical drive urban type Twin coaches; Los Angeles Motor Coach

Co., three urban type Twin coaches; Los Angeles Railway, two double-deck Fageol safety coaches; Boston Elevated Railway, one White model-54 motor coach; Chicago & Joliet Electric Railway Co., one 25-passenger Mack motor coach; Plymouth & Brockton Street Railway, Plymouth, Mass., five 29-passenger Mack city type; Reading Transportation Co., five 29-passenger Mack city type; Southern Public Utilities Co., Greenville, S. C., two 21-passenger Graham Brothers motor coaches; Wisconsin Light & Power Co., Oshkosh, five 30-passenger A.C.F. street car type; Southern Pacific Motor Transport Co., two Fageol parlor coaches, two type-Y 29 passenger parlor coaches from General Motors and two type-X 17 passenger parlor coaches from General Motors; Short Line Motor Transportation Co., subsidiary of the Wadley Southern and the Louisville & Wadley, one model-AB motor coach with a city type body from Mack-International; Union Pacific Stages, Inc., two A.C.F. parlor coaches; Potomac Edison Co., Hagerstown, Ind., four 21-passenger Studebaker street car type buses; New England Transportation Co., five inter-city-type coaches from the Versare Corpn., and six type-Y parlor coaches from the General Motors Truck Co.; Community Traction Co., Toledo, 12 buses from General Motors, six from White Motors, six from Twin Coach and three from International Truck Co. The Toronto Transportation Commission has ordered ten Mack chassis, bodies to be supplied by the Bender Body Co. The Erie Railways Co., Erie, has purchased one new coach, the Kansas City Public Service Co., six 21-passenger coaches, anad the Cedar Rapids & Iowa City Railway Co., Cedar Rapids, three 21-passenger and two 29-passenger coaches.

Changes in Personnel

Executive and Operating

The Louisiana & Arkansas announces these changes: **W. C. Ribenack,** executive vice president; **B. S. Atkinson,** vice president; **F. A. Key, Jr.,** general freight and passenger agent; **H. R. Whiting,** assistant general freight and passenger agent; **E. B. Hickman,** commercial agent; **G. R. Marye,** traveling freight agent; **C. M. McKay,** soliciting freight agent, and **W. F. Wright,** purchasing agent, whose offices were at Texarkansas, Ark., have been changed to the Central Station Bldg., Shreveport, La.

S. L. Morse has been appointed superintendent, floating equipment of the marine department, Central R.R. of N. J., with headquarters at Jersey City. Mr. Morse will succeed **W. S. MacDonald,** whose title of supervisor marine equipment, maintenance and repairs has been abolished.

Otto F. Ohlson, superintendent of the Lake Superior division of the Northern Pacific at Duluth, has been appointed general manager of the Alaska Railroad, and will have charge of the U. S. government's railroad properties under Secretary of the Interior Work. There are about 550 miles of railroad, the main line operating from Seward to Fairbanks, with headquarters at Anchorage. Mr. Ohlson was born at Sperlingsholm, Sweden. His first railroad work was as a telegraph operator there. Later he served with South American and East Indian railroads, and came to the United States in 1893 as operator on the Pennsylvania. He will succeed **Newell W. Smith** on the Alaska road.

E. L. King, vice president of the Northern Pacific Terminal Co. of Oregon, with headquarters at Portland, has been elected president. Mr. King is also superintendent of the Portland division of the Southern Pacific.

C. H. Trembly, who has been with the Great Northern nearly 40 years, has been appointed assistant to the vice president and director of traffic with headquarters at St. Paul.

R. L. Davis, recently appointed assistant to the president of the Kansas City, Mexico & Orient, with headquarters at Wichita, Kan., has been appointed superintendent, with headquarters at Wichita.

E. W. Everett, assistant terminal engineer of the New York Central, with headquarters at New York, has been appointed superintendent.

R. H. Dwyer, superintendent of the northern Kansas division of the Missouri Pacific, with headquarters at Atchison, retired August 1. **E. W. Stanley,** trainmaster at Little Rock, Ark., has been made assistant superintendent in Mr. Dwyer's place.

J. D. MacNutt, assistant superintendent of the Campbellton division, Canadian National, has been appointed acting superintendent to succeed **W. A. Fitch,** who has a leave of absence. **J. Colclough** will act as assistant superintendent to succeed Mr. MacNutt. Headquarters at Campbellton, N. B.

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Solid Manganese
Self Guarded

SPRING FROGS

SHOWING SPRING FROG IN SERVICE

Are giving excellent service under severe traffic conditions on Railroads using them.

Twenty years successful service by CONLEY TYPE FROGS have demonstrated their merit for safe and economical service.

CONLEY FROG & SWITCH CO.

Memphis, Tenn.

G. H. Jacobus, superintendent of the St. Paul division of the Northern Pacific, headquarters Minneapolis, has been appointed superintendent of the Lake Superior division with headquarters at Duluth to succeed O. F. Ohlson, named general manager of the Alaska Railroad. **T. M. Flynn**, superintendent of the Dakota division, Jamestown, N. D., will succeed Mr. Jacobus. **D. S. Colby**, assistant superintendent, Fargo division at Staples, Minn., will succeed Mr. Flynn at Jamestown. **D. M. Driscoll**, assistant to W. H. Strachan, general superintendent at St. Paul, will become acting superintendent of the Rocky Mountain division, relieving **J. M. Johnson**, superintendent, who is ill. **H. D. Mudgett**, trainmaster at Missoula, will succeed Mr. Colby at Staples. **T. J. Regan**, trainmaster at Glendive, will become trainmaster at Missoula, and **E. J. Brierly**, trainmaster at Dilworth, will become trainmaster at Glendive.

R. V. Massey, assistant vice president in charge of personnel of the Pennsylvania, has been appointed vice president in the same capacity with headquarters at Philadelphia to succeed **George L. Peck**, retired.

J. W. Roberts, general superintendent of transportation of the Pennsylvania, eastern region, with headquarters at Philadelphia, has been appointed to the newly created post of assistant vice president in charge of perishable traffic, with headquarters at New York.

Edward Hungerford, centenary director of the B. & O. with headquarters at Baltimore, has been appointed assistant vice president, public relations, of the New York Central, with headquarters at New York.

F. E. Williamson, vice president in charge of operation of the Northern Pacific, with headquarters at St. Paul, has been elected executive vice president of the Burlington, with headquarters at Chicago, to succeed **Claude G. Burnham**, deceased.

The Pennsylvania announces that the headquarters of **J. F. Finnegan**, superintendent of dining car service, has been moved from Columbus to Chicago.

A. C. Shand, assistant to the vice president and for many years chief engineer of the Pennsylvania, retired from active railroad duty August 1. Mr. Shand, who is one of the country's foremost civil engineers and a recognized leader in his profession, reached the age of 70 during July and his name was thus automatically placed on the railroad's Roll of Honor. He is one of the veteran officers of the Pennsylvania, having spent almost 49 years in the company's service.

The Canadian Pacific announces that **E. D. Cotterell**, superintendent of transportation of the western lines, has been appointed general superintendent of the Manitoba district with headquarters at Winnipeg. **J. G. Sutherland**, superintendent of the Calgary division, with headquarters at Calgary, succeeds Mr. Cotterell.

H. E. Stevens, chief engineer of the Northern Pacific, has been appointed vice president in charge of operation, with headquarters at St. Paul, to succeed **F. E. Williamson**. Mr. Stevens first was employed by the Northern Pacific in 1904, was appointed bridge engineer in 1907, and chief engineer in 1916.

Miss Olive Dennis, Engineer of Service, Baltimore & Ohio.

R. B. Butler, superintendent of the Southern division of the Frisco, headquarters at Memphis, has resigned and will be succeeded by **S. J. Frazier**, superintendent, western division, headquarters at Enid. **W. R. Brown**, assistant to the president and general manager of the Muscle Shoals, Birmingham & Pensacola at Pensacola, will succeed Mr. Frazier at Enid.

F. T. Heffelfinger, president of F. H. Peavey & Co., Minneapolis, and **E. J. Sensenbrenner**, of Neenah, Wisc., president of Kimberly-Clark Paper Co., have been elected directors of the Soo Line.

J. C. Otteson, vice president, secretary and treasurer of the Wabash, has retired after practically 52 years of connection with that corporation and its predecessors, dating back to the Toledo, Wabash & Western. **Mary Otteson**, assistant secretary, has retired after nearly 39 years. She is one of the few women who have held an official position with a railroad.

Financial and Legal

C. G. Austin, Jr., vice president and general counsel of the Chicago & Western Indiana and the Belt Ry. of Chicago, has been granted a leave of absence. He is succeeded as general counsel by **J. R. Barse**, general attorney.

A. L. Burford, general attorney of the Louisiana & Arkansas, with headquarters at Texarkana, Ark., has been appointed general solicitor. He is succeeded as general attorney by **C. H. Moses**, who is also secretary of the Graysonia, Nashville & Ashdown, with headquarters at Little Rock.

The Harbor Belt Line announces that **B. M. Billhardt**, in the auditing department of the Pacific Electric, has been appointed treasurer, with headquarters at Los Angeles. **C. B. Nelson**, special accountant for the Southern Pacific at San Francisco, has been appointed auditor with headquarters at Los Angeles.

Traffic

Frank C. Reilly has been appointed European traffic manager of the Frisco with headquarters at Paris and London. Mr. Reilly was traffic manager for the Frisco for several years. For the past three or four years he has been connected with the Inland Waterways, with headquarters at St. Louis.

F. E. Mader has been appointed general agent of the Big Four, with headquarters at Detroit.

F. E. Lewis, assistant general freight agent of the New York Central, with headquarters at Detroit, has been transferred to Cleveland. Mr. Lewis will be succeeded at Detroit by **R. J. Allyn**, general agent in the freight department.

H. H. Traywick has been appointed general industrial agent for the Atlanta & West Point with offices in Atlanta. This is a newly created post following the abolishment of the office of manager of commercial development.

J. T. Cochrane, Jr., general agent of the executive department of the Alabama, Tennessee & Northern, with headquarters at Mobile, has been made general freight agent in charge of solicitation.

G. H. Smitton, freight traffic manager of the Great Northern, with headquarters at St. Paul, has resigned because of ill health. **H. H. Brown**, assistant freight traffic manager at St. Paul, has been appointed general traffic manager. **P. H. Burnham**, general freight agent at St. Paul, has been appointed freight traffic manager. **P. B. Beidelman**, assistant general freight agent at St. Paul, has been appointed general freight agent. **H. R. Carl**, general agent at Duluth, has

been appointed assistant general freight agent with headquarters at St. Paul. **W. D. O'Brien,** general agent at St. Paul, has been appointed assistant general freight agent. **G. A. Blanchard,** traveling freight agent, has been appointed general agent at St. Paul to succeed Mr. O'Brien. **Fred F. Brown** has been appointed traveling freight agent to succeed Mr. Blanchard.

L. G. Tuttle, chief clerk of the tariff bureau of the Rock Island at Chicago, has been appointed chief of the tariff bureau, with the same headquarters.

A. J. Morriss, assistant general freight agent of the Southern Pacific in Louisiana and Texas, with headquarters at Houston, has been appointed general agent of the Southern Pacific Steamship Lines, with headquarters as before. Mr. Morriss is succeeded by **J. E. Carter,** assistant general freight and passenger agent, with headquarters at Lake Charles, La. **Joseph Spear,** division freight and passenger agent at Alexandria, La., succeeds Mr. Carter at Lake Charles.

K. F. Poelling has been appointed soliciting freight agent of the Kansas City Southern to succeed **W. E. Nicholson,** resigned.

The Milwaukee announces that **O. P. Kellogg,** assistant general freight agent at Seattle, has been appointed general freight agent with headquarters at the same point, and will be succeeded by **Harry Rowe,** division freight and passenger agent at Seattle.

C. A. Moore, general agent for the Santa Fe at Des Moines, has retired. He is succeeded by **J. C. Batham,** traveling passenger agent, with headquarters at Des Moines.

The Illinois Central announces the following appointments: **William Haywood,** general freight agent in charge of solicitation, with headquarters at Chicago, has been appointed assistant freight traffic manager in charge of solicitation; **F. H. Law,** general freight agent, has been named assistant freight traffic manager in charge of rate adjustments; **F. C. Furry,** assistant general freight agent at Chicago, succeeds Mr. Law; **R. P. DeCamp,** assistant coal traffic manager, succeeds Mr. Furry; **C. E. Stailey,** assistant general freight agent in charge of solicitation, succeeds Mr. Haywood. He will be succeeded by **O. L. Grisamore; C. L. Netherland,** assistant general freight agent on the southern lines with headquarters at Memphis, has been named general freight agent in charge of solicitation on the southern lines.

G. A. Ryser has been appointed assistant general freight agent of the Texas & Pacific, with headquarters at Dallas.

Mechanical

G. S. West, assistant master mechanic on the Pennsylvania, with headquarters at Meadows, N. J., has been appointed master mechanic of the Conemaugh division, with headquarters at Pittsburgh.

Harry B. Bowen, works manager of the Canadian Pacific with headquarters at Winnipeg, has been appointed assistant superintendent of motive power of the western lines, with headquarters as before.

H. D. Mackenzie, master mechanic of the Canadian National at Campbellton, has retired and will be succeeded by **Page Carlisle,** locomotive foreman at Moncton, N. B.

Job A. Edson.

Civil

G. H. Schlotterer, supervisor, eastern division of the Pennsylvania, with headquarters at Conway, Pa., has been appointed engineer of the Indianapolis division, with headquarters at Indianapolis. **A. H. Tasker,** supervisor of telegraph and signals in the Central region, with headquarters at Pittsburgh, has been appointed division engineer of the Conemaugh division, with headquarters at Pittsburgh.

The Milwaukee announces that **J. F. Pinson,** division engineer of the Coast division, with headquarters at Tacoma, Wash., has been appointed to the newly created position of assistant engineer of maintenance of way of lines west of Mobridge, S. D., with headquarters at Seattle. **R. H. Smith,** division engineer on the trans-Missouri division with headquarters at Mobridge, succeeds Mr. Pinson. **C. J. Swane,** division engineer on the Musselshell division with headquarters at Miles City, has been transferred to the northern Montana division with headquarters at Lewiston, Mont., succeeding **W. E. Ring,** who has been transferred to Miles City with jurisdiction over both the Musselshell and the trans-Missouri divisions.

H. E. Beard, recently appointed acting chief engineer of the Orient, with headquarters at Wichita, has been promoted to chief engineer. **J. G. Wolfe** has been appointed division engineer, with headquarters at San Angelo, Tex.

G. C. Beaumont, in the engineering department of the L. A. & S. L., has been appointed terminal engineer of the Harbor Belt Line, Los Angeles.

The Frisco announces the following changes: **D. E. Gelwix,** division engineer, with headquarters at Ft. Scott, is appointed maintenance assistant to general manager, with headquarters at Springfield, Mo. **J. O. Armstrong,** assistant division engineer at Ft. Scott, succeeds Mr. Gelwix. **B. H. Crosland,** terminal roadmaster at Kansas City, succeeds Mr. Armstrong as assistant division engineer at Ft. Scott. **G. W. Koontz,** division engineer, with headquarters at Chaffee, Mo., is appointed engineer, southern division, with headquarters at Memphis to succeed **J. H. Brooking,** resigned. **E. L. Brandt,** assistant engineer on the River division, with headquarters at Chaffee, succeeds Mr. Koontz.

Obituary

Job A. Edson, former president of the Kansas City Southern, died July 30, at Long Beach, Cal., aged 74. Mr. Edson started his career as a telegraph operator at the age of 15 and became one of the most dominating railroad figures of the country. He was elected president of the Kansas City Southern in 1905, retiring from that position January 1, 1928.

James McNaughton, vice president of the Baldwin Locomotive Co., in charge of the New York office, died at his home in Bronxville, July 27, of heart disease, aged 68. Mr. McNaughton was born in Queensville, Ont., and except for the period of the World War was connected with the railroad industry since his eighteenth year, when he entered the shops of a railway equipment company in Minnesota. In the World War he organized the Eddystone Munition Works, and until the armistice was the president and general manager. For some years before the war he had been vice president of the American Locomotive Works.

F. F. Small, special mechanical engineer for the Southern Pacific, died July 22 at his home in San Anselmo. Prior to his affiliation with the Southern Pacific a few years ago Mr. Small was connected with the motive power department of the Pacific Electric in Los Angeles.

George H. Steinberg, treasurer of the Terminal Railroad Assn. of St. Louis, died at St. Louis, July 12, aged 72. Mr. Steinberg had been with the association for more than 50 years.

Edwin B. Katte, chief engineer of electric traction of the New York Central, died at his home in Irvington, N. Y., July 19, aged 47, after an illness of more than a year. He had held the position of chief engineer since November, 1906.

Garrett Davis, former district engineer and superintendent of the Rock Island, died at Calgary, Alta., July 16, aged 73. Mr. Davis had been with that road 48 years when he retired in 1925.

Supply Trade Notes

O. B. Capps, president of **O. B. Capps, Inc.**, has arranged to represent in eastern territory the **Buffalo Bronze Die Cast Corpn.**, Buffalo; the **Baker-Raulang Co.**, Cleveland, and the **Melcher Roller Journal Bearing Co.**, De Pere, Wis. Mr. Capps was with the American Locomotive Co. at Schenectady prior to 1911. In 1913 he was made mechanical expert of the Locomotive Stoker Co., and was appointed eastern sales manager at New York in 1917 where he remained until early in 1928 when O. B. Capps, Inc., was formed.

Edward Barrett Smith and **Maurice N. Trainer** have been named assistant vice presidents of the **American Brake Shoe & Foundry Co.**, New York, reporting to the vice president in charge of eastern and southern sales department.

Charles L. Hacket has been appointed resident manager at Montreal, for the **General Railway Signal Co.** He will have control over central and eastern Canada.

William H. East, sales engineer of the **Central States Electric Co.**, has been appointed sales engineer of the **Pyle-National Co.**, with headquarters in the Straus building, Chicago.

The **General Electric Co.**, Schenectady, has elected as honorary vice presidents, **J. R. Lovejoy**, vice president, who has served the company 42 years; **George F. Morrison**, vice president associated with the company 45 years, and **B. G. Tremaine**, one of the organizers of the national lamp division. All three will continue to function as directors.

E. H. Gerberding has been appointed assistant treasurer of the **Westinghouse Electric & Mfg. Co.** He has been with this company since he was 17 years old.

Raymond E. Miller, assistant chief engineer of the **Westinghouse Air Brake Co.**, Wilderming, Pa., has been appointed general engineer to succeed **F. H. Parke**, deceased. Mr. Miller has been with this company for the past 22 years, having entered service as a special apprentice immediately after his graduation as an electrical engineer from Michigan University in 1906.

R. E. J. Summers, chief contracting engineer of the **H. K. Ferguson Co.**, Cleveland, has been appointed vice president in charge of contracts.

New Westinghouse Booklet

A new 24-page circular C-1787, Electrical Equipment for Railway Signaling, has just been issued by the Westinghouse Electric & Mfg. Co. The publication contains a description of equipment and its uses in the signal system. The contents include automatic switching coils, cutouts, disconnecting switches, fuses, fuse blocks, insulating materials, lightning arresters, motor-generator sets, porcelain insulators, portable instruments, safety switches, transformers and wiring details. The circular is profusely illustrated. Copies of the circular may be obtained from any Westinghouse district office or by applying to the transportation section, advertising department at East Pittsburgh.

Air Hoists With New Features

The Chicago Pneumatic Tool Co., 6 East 44th street, New York, announces a line of GP Air Hoists embodying several new distinctive features. The three sizes now available have a capacity of 2000, 3000 and 4000 pounds respectively and have an enclosed type load block. The motor is four cylinder, single acting and practically vibrationless.

IMPROVED COLUMBIA
LOCK NUTS
Made in S. A. E. Sizes
for use on MOTOR BUSES

Many manufacturers consider them standard on their gas and electric equipment.

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A "SELF-LOCKING-NUT"

Standard sizes and dimensions. Easily applied without waste of time or injury to threads. CANNOT shake loose. FREIGHT CARS all over the country have them on. They have stood the test of years.

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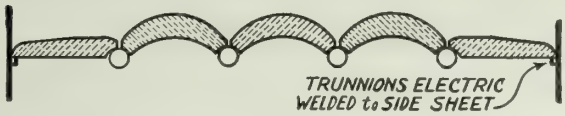
SPECIALISTS IN FORGED

Center Plates
Draw Bar Yokes
Knuckle Pins
Air Brake Pins
Brake Jaws
Journal Box Wedges
and
Miscellaneous Forgings

Send us your specifications

Steel Car Forge Company
Pittsburgh New York Chicago Baltimore

Economy Baffle Walls
for
Steam Locomotives



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1. **Eliminates liability of side brick dropping into fire bed.**
2. Insures maximum life of brick with minimum weight on arch tubes.
3. Eliminates the necessity of straightening or replacing bent arch tubes, due to wedging effect.
4. Closes the "pockets" between brick and side sheets, where slag and "honey-comb" accumulate, thus increasing the active firebox heating surface.
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ECONOMY ARCH COMPANY

Distributors of locomotive arch brick for
EVANS & HOWARD, LACLEDE CHRISTY and A P GREEN FIREBRICK COMPANIES

1843 RAILWAY EXCHANGE BUILDING — ST. LOUIS, MISSOURI

JORDAN SPREADER

"Does the Work of an Army of Men"

SNOW PLOW ★ ICE CUTTER ★ DITCHER ★
UNIVERSALLY STANDARD

O. F. JORDAN COMPANY
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'RALSTON BUILT'

Steel and Composite Cars

Completely rebuilding large numbers of steel cars in record time is an achievement that Ralston Steel Car Company has repeated time and time again.

This is possible only through our excellent facilities and well-balanced program, which, together with skilled workmen and competent engineers, keep the cars moving through the plant on regular schedule.

THE RALSTON PLANT is equipped to build New Cars, to Rebuild Old Cars, to Repair and to supply repair parts. All materials and work of the highest QUALITY and performed under expert Engineering Supervision.

RALSTON STEEL CAR CO.
COLUMBUS, OHIO

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SESSIONS STANDARD DRAFT GEAR

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CALIFORNIA

Transportation

The Monthly Magazine of the Transportation Industry

CALIFORNIA STATE LIBRARY

Vol. III September 1928 No. 3

Two New HYATTWAYS to the West

THE Chicago & North Western Railway recently placed in service "The two Finest Trains in the World" —the new *North Western Limited* between Chicago, St. Paul and Minneapolis and the new *Corn King Limited* between Chicago, Omaha and Sioux City—a fleet of four complete trains—all cars have complete installation of Hyatt Roller Bearing equipped Journal Boxes.

Standardization on Hyatt Roller Bearings for these super trains is an important step in providing added riding comfort and greater operating economies.

On the North Western, and on more than sixty other roads, there are hundreds of Hyattized cars in limited and suburban service—indicating that a new era of traveling ease is at hand—and that railways are becoming Hyattways, for Hyattways are Comfort Ways.

HYATT ROLLER BEARING COMPANY
Newark Detroit Chicago Pittsburgh Oakland

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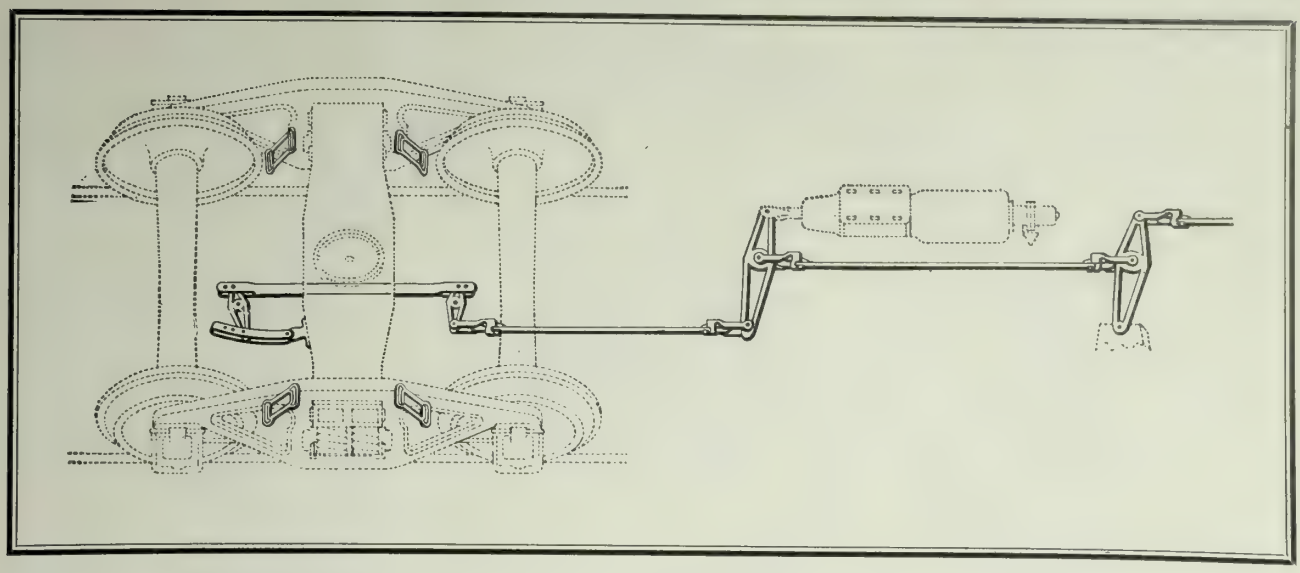
ROLLER BEARINGS
PRODUCT OF GENERAL MOTORS



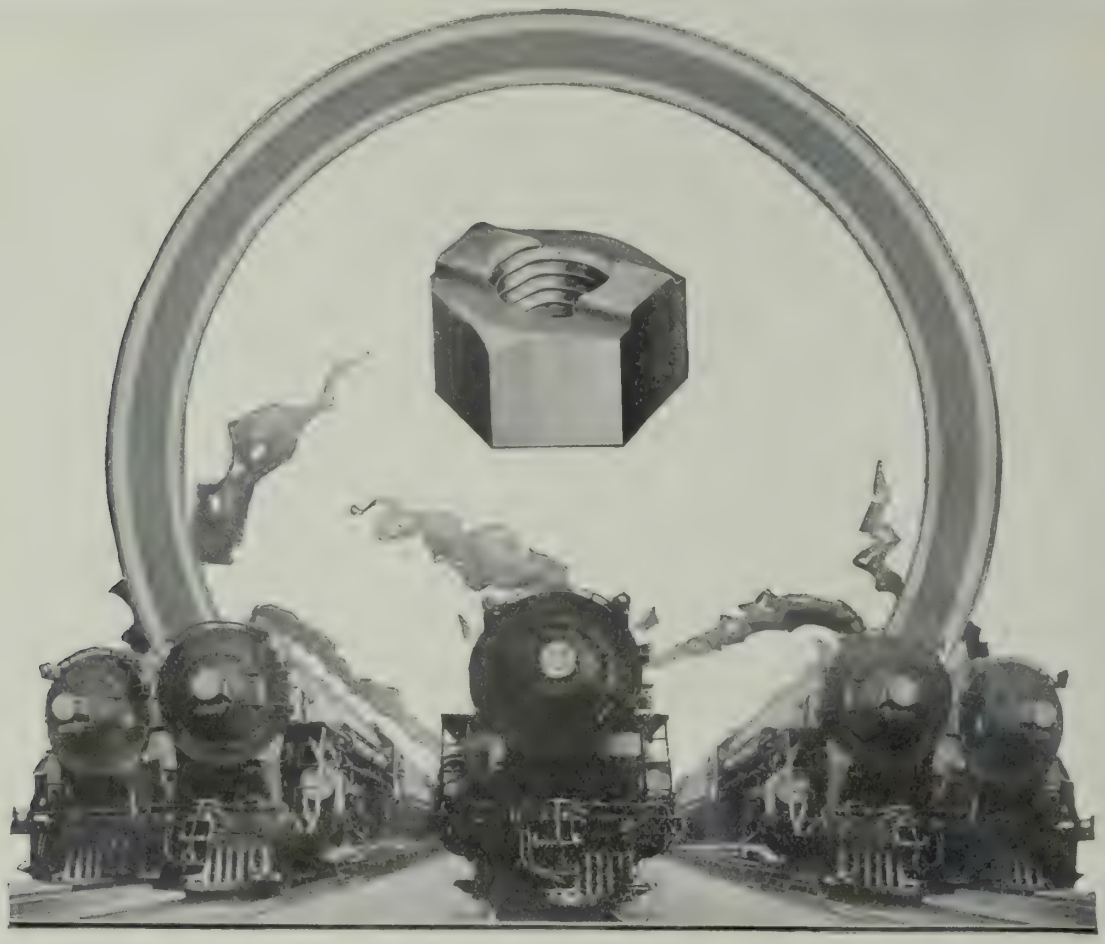
Snug Brake Rigging

BETWEEN the brake cylinder and brake beam are an average of 19 pins in the Foundation Brake Gear. A little slack at each pin multiplies rapidly. It causes additional piston travel and excessive impact when the brakes are applied. It materially decreases braking efficiency and operating safety.

Schaefer Brake Details are designed to avoid the excessive wear that creates slack. They are made of special wear-resisting steel, are light in weight and accurately finished--three features essential to long service life and continuously efficient braking action.

Over a period of twelve years, Schaefer Foundation Brake Details on many roads have shown substantial reductions in renewal costs.

Specify "Schaefer" for increased economy and safety.



There's Money in Movement

MONEY isn't made on the rip track. Only when trains are in service — moving — are they bringing in revenue.

Grip Nuts' job is to keep equipment in service by holding bolted parts unshakably in place — and they've done the job successfully for more than twenty-one years.

A. R. A. Standard dimensions, and accurate, full-depth threads, insure maximum holding power; the positive, automatic lock, built into each nut during manufacture, has proved, on 147 Class 1 railroads, that *a Grip Nut applied is a Grip Nut locked.*

The railroads' revenue depends on keeping equipment moving; Grip Nuts help keep it moving. So there's money for the railroads in Grip Nuts.

GRIP NUT COMPANY

5917 South Western Avenue, Chicago, Illinois

Transportation

The Monthly Magazine of the Transportation Industry

SEPTEMBER, 1928

VOLUME THREE NUMBER THREE

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LITTLE STORIES ABOUT BIG MEN

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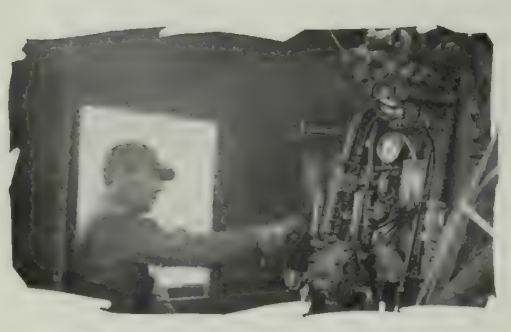
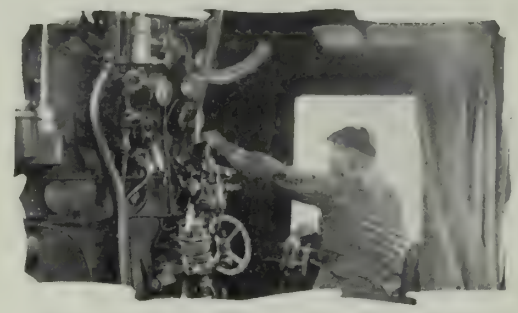


"SHE TAKES HER OATS NICE"



"SHE SURE SHOVES A NASTY PISTON"

THESE were the tributes of an engine crew to a Super-Power Locomotive. It was the engineer's way of expressing his appreciation of the high power capacity and increased speed of this locomotive, while the fireman expressed in his own way a tribute to the free steaming and low fuel consumption of the engine.

Operating records bear out these expressions. Super-Power Locomotives in every-day service are continually proving their ability to haul 50% more tons at a third higher speed with 40% less fuel than the average freight engine now in service.

LIMA
LOCOMOTIVE WORKS
INCORPORATED

The Sky Is the Limit

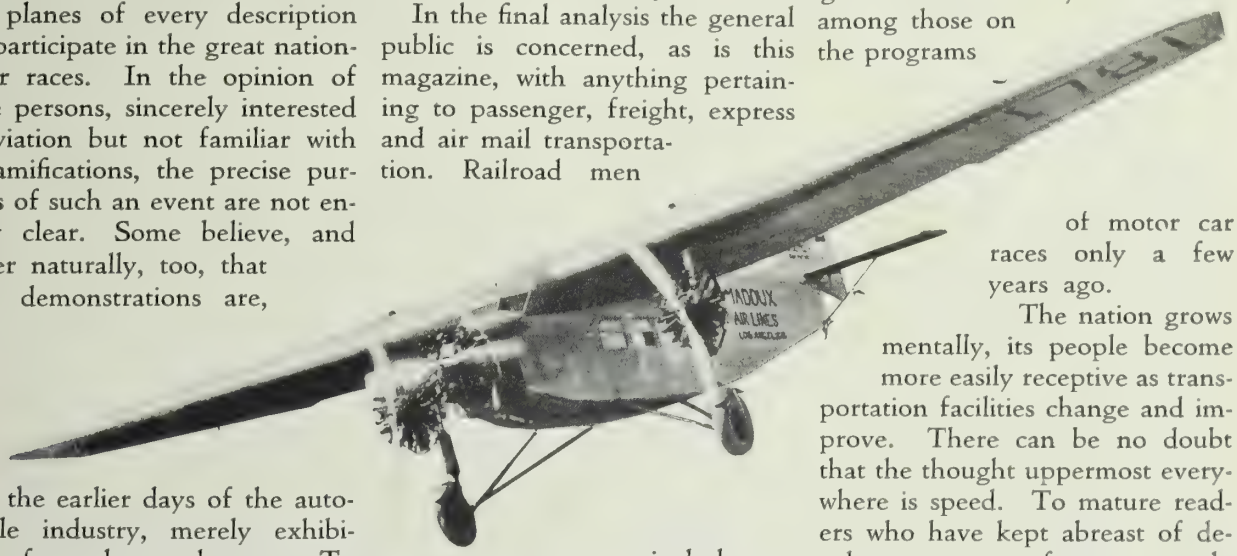
National Air Races Bring Hundreds of Planes to the Coast This Month. Luxurious Liners of the Maddux Fleet

By Charles Dillon

THE EYES and the thoughts of the air-minded turn this month to the Pacific Coast where, at Los Angeles, more than 400 planes of every description will participate in the great national air races. In the opinion of some persons, sincerely interested in aviation but not familiar with its ramifications, the precise purposes of such an event are not entirely clear. Some believe, and rather naturally, too, that such demonstrations are, as in the earlier days of the automobile industry, merely exhibitions of speed or endurance. To others the air races are stunts, sometimes attended by accidents and occasionally by fatalities.

But this is not the purpose of the present national air races. True, there will be stunts of one kind or another, but these are not intentionally crazy undertakings. The average person sees no sense in making an airplane loop-the-loop or go through other dangerous gyrations, ignoring the important fact that the strain imposed on the plane is intended to show just how air-worthy it really is, how quickly it can be snatched out of a dangerous spin, how fast it can fly, and just what, precisely, are its passenger-carrying qualities. In the army and navy air forces the flyers are obliged to do all these stunts, primarily to test their planes, and in this way determine their qualifications for getting out of a tight place, bringing down the enemy, and getting plane and pilot back to port uninjured.

In the final analysis the general public is concerned, as is this magazine, with anything pertaining to passenger, freight, express and air mail transportation. Railroad men particularly are watching the preparations for the races, and they are doing this in the friendliest spirit, a fact demonstrated by hundreds of letters showing their keen interest in the latest development of aviation, for travel by air and rail is now an assured fact. So popular has the idea become of coordinated travel that already it is necessary to make reservations in advance for space in the various planes serving passengers from railroads, motor stages and steamship lines. Aerial races, therefore, in a region visited by so many thousands of tourists from every part of the world, have an astonishing attraction. The most distinctly unusual feature of the present program, perhaps, is the fact that the names of railroad officials, nationally known, are included in the membership of committees arranging or managing the air races. It would have taken a pretty high-power magnifying glass to discover any such names among those on the programs of motor car races only a few years ago.



The nation grows mentally, its people become more easily receptive as transportation facilities change and improve. There can be no doubt that the thought uppermost everywhere is speed. To mature readers who have kept abreast of developments any reference to early days in our history, or in the history of England, where railroading began more than a hundred years ago, seems trite. But for the Rising Generation, written always with capital letters, it is or should be startling to remember that the proposal to send trains dashing across the country at ten or twelve miles an hour was thought to be criminal, and in some states of the union was declared contrary to the teachings of Holy Writ whose authors appear to have been a bit stodgy in their mental arrangements.

So astonishingly rapid has been the development of speed in only a few years that Youth accepts the day's aviation news with a yawn. The motor car of course is largely responsible for this attitude, and it is not all affectation. A boy or

This Was the Air Liner Wilbur Wright Used in the Flights at Fort Myer, Va., in June, 1909. Certainly Does Look Like Putting the Skids Under a Life Insurance Policy. Now Compare It With the Maddux Tri-Motored Ships.

girl accustomed to 40 or 50 miles an hour on a hard surface highway learns to scorn the slower travel rate of railroad trains, and turns eagerly to the airplane which promises 100 to 150 miles in 60 minutes. A dawn-to-dark flight across the continent a few years ago gave Youth a thrill; the Lindbergh achievement elicited a hearty cheer; the air mail, crossing the country in 30 hours has his wholesouled respect and admiration, and Art Goebel's recent historic non-stop flight from Los Angeles to New York in less than 19 hours made him smile with satisfaction. Just what it means to live in such an age of marvels is not worrying Youth to any great extent. Try to tell him how proud he ought to be to live in such times and you get a patronizing smile with the information added that these wonderful records are being made by youngsters in their twenties, which is a fact.

We speak of the nation as becoming air-minded, but this must be taken a trifle cautiously. Men and women who travel much doubtless may properly be included among the really air-minded; passenger air lines are being patronized liberally by thousands, but it must be remembered that thousands in a country of about 120 millions leave much to be done educationally before air travel becomes as popular as rail or motor. When automobiles were introduced most persons thought them freak contraptions, expensive, dangerous, something to avoid. Air travel has precisely the same experience to live through. There is no doubt, after one listens to casual conversations, that generally speaking the people at large think of the airplane as a freak. Every time a student of flying crashes to his death, every time a plane flies into space and is seen no more, aviation is retarded, as motor car development and popularity were retarded by accidents. Nowdays we know it is not the car but the driver that is at fault, and this is true of aerial navigation. In ten years the air mail service has had just 32 fatal crashes in flying 13,768,072 miles. In the first ten years of railroads in this country there were that many wrecks in a month. Even in the 60s, according to Harper's Weekly editions of the time, the casualties were so numerous and service so dreadful that the entire nation was stirred to the depths, and all kinds of crazy legislation resulted.

J. L. Maddux, President of the Maddux Air Lines.

Every generation has to figure out its own problems. What the future of aviation is to be may be estimated by the attitude of the Rising Generation. Gray heads may hesitate to take their first aerial flight, but not Youth. Youth grasps eagerly the first chance to ride in the clouds, the higher the better, the faster the more pleased is he. Don't talk to Youth about wasting 90 hours or more traveling to New York. If he has the price he's going to fly because he can make the trip in 30 hours; and the chances are that this will be considered "local service" in a very few years.

It seems only a few days since passenger air liners were talked about as something far in the future. Now that it is an actuality men whose business is really important never hesitate to fly. Fifty or seventy-five dollars is a small thing when a big deal impends. It seems like Jules Verne stuff to write, but it is a fact nevertheless that if the transaction warrants the outlay, as transactions do almost every day, a big business man can fly from New York to Washington or from Los Angeles to San Francisco any afternoon, attend to business and be back in his own home for dinner. If one has time to spare no better way to travel can be found, and no safer, cheaper way, than by rail; and this will be the case for many a long year to come. But if you are in a hurry you examine the time cards of the air transport. No finer demonstration of intelligent appre-

Showing the Dual Control and Two Pilots; George Allen, Pilot, Right, and Lester Rodda, Mate.

ciation of the value of air transportation has been recorded in the West than the action of William Sproule, president of the Southern Pacific System, one day last month. Mr. Sproule, returning from New York where business had delayed him longer than he had expected, discovered about the time he was approaching Salt Lake City that he most certainly would be late for a very important engagement in San Francisco. A year ago President Sproule doubtless would have wired his regrets and reached the coast when he could. But this trip Mr. Sproule was keeping up with the advantages science had provided. He boarded an airplane at Salt Lake City and arrived in San Francisco in plenty of time.

In practically all the large cities nowdays passenger air service is available. Out of Los Angeles two great companies are operating, the Western Air Express, described in these pages last month, and the Maddux Air Lines. The latter, organized less than a year ago, covers the territory between Agua Caliente, Mexico, and San Francisco, but operates differently than others in assuring itself revenue while pioneering by touching at many points instead of trying to get a living between only two or three large terminals. The Maddux Air Lines, indeed, have linked the principal cities of California, and as a consequence are getting the patronage they need and deserve. The success of the air line business, Mr. Maddux says depends largely on the number of planes passing over the roofs of prospective passengers, how often they pass over and how regularly. The tremendous volume of publicity given aviation, he says, has awakened public interest, and prepared the way for public confidence. The rest now largely depends on the regularity and the volume of business obtained through traffic solicitation and the effect of business requirements.

The first Maddux line wasn't a line at all. Mr. Maddux, a motor car dealer, bought a Ford air liner. Larry Fritz, chief test pilot of the Ford Motor Co., went west with the ship, and for several weeks it was flown around, airports inspected, sightseeing trips conducted, and so forth. Then the Los Angeles-San Diego line was opened with Colonel Charles Lindbergh piloting the first trip. On April 14, last, the success of the San Diego run, and the fact that three Ford ships had been obtained altogether (one of them arriving on the night of April 13), led to the opening of the Los Angeles-San Francisco division.

The first international air line out of the United States was officially established July 4, moving the southern terminal from San Diego to the new resort colony of Agua Caliente. In the near future regular service to Ensenada will be in effect.

Naturally, the man about to take his first air trip thinks about a number of things, including his insurance. The first thing to remember is that pilots employed by

Howard Bentley, 2 Years Old, Traveled as Air Express, San Francisco to Los Angeles; 41 Pounds at 50 Cents a Pound; $20.50.

the established air lines perform no stunts. You needn't give that element a thought. It is mentioned here because a few letter writers have referred to it. A pilot would no more think of doing a stunt with a passenger air liner than a locomotive engineer would think of running ahead of time because he had a toothache. It isn't done.

Comparisons between relative speeds of two air lines, or two types of equipment, mean little. Maddux Air Lines' equipment is built primarily to meet the basic requirement for safety, reliability, regularity. Speed is entirely secondary in its design. The air route at any pace allows so great a time-saving over other mediums that saving a few minutes more through superlative speed is unnecessary.

The regular traveler of the sky-way will check, first of all, the economic and pleasure values of the route he takes. Maddux Air Lines' California system offers travelers the widest range of possibilities. Daily service on the northern division covers Los Angeles, Bakersfield, Fresno, Oakland and San Francisco. The southern division extends from Los Angeles through Long Beach, Santa Ana and San Diego to Agua Caliente, Mexico—the first daily international air line in American aviation history.

The traveler accustomed to railroads wonders, quite naturally, about the regulations, rules and what not. The time cards, as the illustration shows, are much like those found in a railroad office, and they are just about the same all over the world. The air lines have passenger agents too, just as railroads have, they are about as voluble, and like their counterparts of the steam trains they bear down hard on the superior comforts and safety of their respective lines. A few words from a Maddux time card folder are illuminating:

"Standard equipment for the daily passenger service of Maddux Air Lines is the Ford all-metal, 12-passenger, parlor monoplane, powered with three Wright Whirlwind motors, a single one of which carried Colonel Charles A. Lindbergh's "Spirit of St. Louis" across the Atlantic. Genuine comfort as well as the luxury of speed is the keynote of the huge craft, with its easy chairs, wide windows and ample foot-room suggesting complete relaxation and rest. No dust, dirt or smoke is associated with a transport of this type, raising it above all other transportation mediums for cleanliness. A rest room is conveniently located. Rack space for hats, coats and other light encumbrances is provided, besides the regular luggage storage.

"Reservations will not be held later than 24 hours before departure, unless paid for. Refunds on reservations cancelled later than this will be subject to a 25 per cent cancellation fee subject to sale of seat. No refunds on reservations cancelled later than two hours before departure.

"There are no half fares. Children charged full fares.

"No dogs, cats, birds or other pets allowed.

"The company reserves the right to refund fares in full and alter the published schedule without notice.

"In traveling from one city to another for luncheon, dinner, an interview or any other special purpose, dress exactly as that purpose demands. Do not add or detract anything for the air route.

"A box luncheon will be provided for Maddux Air Lines passengers on the Los Angeles-San Francisco run at a nominal charge, if they make known their wishes when making reservations.

"Each passenger is allowed 25 pounds of hand luggage; excess will be charged for according to tariff of the various routes. Company's liability is limited to $100."

In all the big hotels the head porter will make reservations for you in the next airplane just as he does for a Pullman berth.

RATES AND SCHEDULE AT A GLANCE

LOS ANGELES—SAN FRANCISCO DIVISION

* Stops on Reservation Only	North Bound	South Bound Read Up	Trip	Los Angeles	*Bakersfield	Fresno	San Francisco
Los Angeles	Lv. 9 30 AM	Ar. 2 00 PM	One-way R. T.	...	$15 00 27 50	$30 00 55 00	$45 00 85 00
*Bakersfield	Ar. 10 50 AM Lv. 11 00 AM	Lv. 12 30 PM Ar. 12 20 PM	One-way R. T.	$15 00 27 50	.....	15 00 27 50	32 00 60 00
Fresno	Ar. 12 00 M Lv. 12 10 PM	Lv. 11 20 AM Ar. 11 10 AM	One-way R. T.	30 00 55 00	15 00 27 50	.....	25 00 46 00
*Oakland	Ar. 1.45 PM	Lv. 9.45 AM	One-way R. T.	45 00 85 00	32 00 60 00	25 00 46 00	.....
San Francisco	Ar. 2 00 PM	Lv. 9 30 AM	One-way R. T.	45 00 85 00	32 00 60 00	25 00 46 00	.....

LOS ANGELES—SAN DIEGO—AGUA CALIENTE DIVISION

* Stops on Reservation Only	North Bound	South Bound Read Down	Trip	Agua Caliente	San Diego	*Santa Ana	*Long Beach	Los Angeles
Los Angeles	Ar. 6.00 PM	Lv. 9.45 AM	One-way R. T.	$20 00 37 50	$15 00 27.50	$ 8 00 15 00	$ 8 00 15 00	.....
*Long Beach	Lv. 5.45 PM	Lv. 10 05 AM	One-way R. T.	20 00 37 50	15 00 27 50	.....	.....	$8 00 15 00
*Santa Ana	Lv. 5 30 PM	Lv. 10.15 AM	One-way R. T.	20 00 37 50	15 00 27 50	.....	.....	8 00 15 00
San Diego	Lv. 4.45 PM	Lv. 11.00 AM	One-way R. T.	7 50 12 50	.....	15 00 27 50	15.00 27 50	15 00 27 50
Agua Caliente, Mexico.	Lv. 4.15 PM	Ar. 11.20 AM	One-way R. T.	.....	7 50 12 50	20 00 37 50	20 00 37 50	20.00 37 50

A Lot of Information in This Little Time Card Issued by the Maddux Air Lines.

Special motor cars are provided, free, to take passengers from the down-town ticket offices to the airports, and special sightseeing trips are arranged over most of the large cities, the charge being five dollars a passenger. We used to pay $20 for the same trip a few years ago. Then there are special planes to be chartered for other purposes. Sportsmen may take week-end hunting and fishing trips which in the past have been prohibited by limitations of time. The tempo of modern life calls for speed in all contacts—and flying is the answer. Maddux Air Lines have the large Ford three-motored, all-metal air yachts carrying two pilots and ten passengers, and for smaller parties swift, dependable Lockheed monoplanes carrying four besides the pilot.

With the California Parlor Car Tours, Inc., a land-and-air trip over the heart of California has been arranged. Three days are required for the land trip, in palatial motor coaches offering luxurious travel over the beautiful highways between Los Angeles and San Francisco. Overnight stops at two of the West's most famous hotels, and meals at the best inns, are included in the fare. The missions and all scenic points of the famous coast highway are included in this trip. The return by air is made in four hours, over the great San Joaquin Valley. The complete trip, one way land, one way air, is only $90.

To the uninitiated the trips described and the comforts and rates mentioned appear fantastic, but not to the thousands who are going through just such experiences every day. "One way rail, one way air," is becoming a commonplace expression—"Have you been up yet?" is another, and the funny part of it is that those who haven't been up nearly always offer excuses of one kind or another as might a schoolboy who has "forgotten" to wash his neck. Not to have been up stamps you as a slowpoke, 'fraid-cat, as the children say.

The Cabin of a Maddux Air Liner Carrying Ten Passengers and Two Pilots, Now Flying Between San Francisco and Los Angeles in Daily Service.

About your insurance. This worries a lot of persons. How will a ride in the air affect your policies? The Underwriters' Report, an authoritative insurance publication, has just completed a survey of the principal life insurance companies. Twenty-seven such companies were questioned. Twenty-six of the companies reported no restrictions in their policies in regard to air travel. Some companies even pay double indemnities for death while flying and give coverage for aeronautical accidents. Only one company reported any restriction, this company specializing in industrial and group insurance.

Eight companies stated that they will write insurance for both occasional and regular passengers, provided the plane is operated by a regular corporation over established routes. Eight other companies reported that they, too, will write insurance for airplane passengers, considering each case according to the degree of hazard involved. Seven companies accept occasional passengers as normal risks, and will write policies for regular passengers if it is thought warranted. Two companies insure occasional passengers, but as yet have no regulations to cover regular passengers.

Fifteen companies charge no extra premium on policies held by persons who travel by airplane. The practice of eight other companies is variable; ordinarily they do not charge an extra premium. Three companies levy no extra premium for occasional flights, and charge the regular passenger from $5 to $25 per $1000 extra.

Have you been up?

To look fearlessly upon life; to accept the laws of nature, not with meek resignation, but as her sons, who dare to search and question; to have peace and confidence within our souls—these are the beliefs that make for happiness.—Maeterlinck.

Queer Happenings in August

MRS. LOU SAYLOR'S children certainly qualify for a place in the department of Queer Things. The family was going east on the Santa Fe a few days ago. Of course, the children had to have the car window open so as to let in the pleasant, warm air. Naturally they had to have something to amuse them, too, the country round about not offering much in scenic splendor. So mother gave them her purse. While the train was rushing along just east of the Needles, the well-known summer resort, through what James B. Duffy, general passenger agent, tactfully calls a "sparsely-settled country," what more child-like than for the children to throw mother's purse out on the right of way, much to the delighted astonishment of prairie dogs and owls? Purse, tickets, papers, $65, baggage checks, hairpins, and all the other wonderful assortment of property always to be found in such cavernous receptacles. And there was mother with her family and no more money than a Texas Republican after election.

But the purse came back. Mrs. Saylor reported her loss and the very next day Special Officer Cronenberg went out into the sparsely-settled country previously mentioned, and none of the sparse settlers having been around recently, the purse was found and restored to its owner.

A Negro Stole An Engine

Artist Henry, negro, who ran off with a locomotive, awaits trial at Atlanta, Ga., following a legal quibble over whether he should be indicted for theft or "malicious mischief."

He finally was indicted for "malicious mischief" but Lewis P. Jones, calendar clerk of Fulton county, said, "Sure he ran off with the engine, but who will believe he intended to divert the engine to his own use?"

The negro took an A. B. & C. locomotive under steam in the railroad yards and drove it from a side track into a string of box cars.

Three Rousing Cheers

Waving an American flag over his head while his son signaled with a burlap bag, John Anklet, a farmer of Swain, N. J., flagged a passenger train in time to save it from derailment last month. The train, a Monday special over the Pennsylvania Railroad, carried about 300 passengers from Wildwood to Philadelphia. A heavy rain had undermined some of the ties, causing a rail on the northbound track to buckle.

To prove how deeply they appreciated the farmer's warning the 300 passengers got up a purse of $105 and presented it to him. This amounts to about 35 cents a life, but perhaps some of the crowd didn't put any value on themselves, and some may have given a dollar.

Railroads Are Run By Fathers

Texas & Pacific locomotives are doing mighty little whistling nowdays in and about the town of Odessa, Texas. It took a group of grim-faced tired-out mothers to put a stop to the noise. Now, and in the future, it is to be hoped, the babies of Odessa will sleep peacefully day and night, and parents may snore their heads off undisturbed. All of which is much more important than it seems at first glance. The casual reader, looking for Queer Things, thinks only of Odessa, Texas. But what about all the other towns along the T & P and the 2079 railroads long and short, here and there, all over this beautiful land? What about the thousands, or perhaps the millions of babies in all these towns whose daily naps and nightly slumbers are being broken, ruthlessly, by the raucous whistles of locomotives, the screech of sirens, the roar of airplane motors? What about them? Is there a quiet place anywhere?

Please Pass the Salt

The longest solid train load of salt ever moved by rail, consisting of 79 cars, was routed via Frisco Lines out of Lyons, Kan., on August 2. The destination was Kansas City, Mo., where the train was broken up and cars were moved to points west. The salt was shipped by the American Salt Co. of Lyons, Kan., and the train load totaled 4,193 tons. Three engines were used to haul the train out of Lyons and every car was uniform in type and size. The train, which had received much publicity in towns through which it passed, was met by great crowds who cheered its three engineers.

Item from the Philadelphia Public Ledger's "Yesterday" column: Ninety years ago today: Traveling by steam railway and boat, a citizen of Haverhill, Mass., came from his home to Philadelphia in twenty-four hours, his speedy trip arousing much admiration.

We get from people what we give; we find in them what we bring; and the changes are not changes in them so much as changes in ourselves. — Bruce Barton.

The Missouri Pacific's New Home in St. Louis

By

W. H. Paterson

The Missouri Pacific's New Home is 270 Feet High; This Means 22 Floors, and It May Go to 395 Feet Eventually.

FRONTING on the site of the proposed Memorial Plaza, the new Missouri Pacific Lines Building in St. Louis occupies a commanding position in what will some day be the heart of St. Louis' civic and business activities. The building, which represents an investment of $2,500,000, including the ground on which it stands, houses the general offices of the Missouri Pacific Lines, with more than 3,500 employes and officers of the railroad.

Ground was broken for the new building by President L. W. Baldwin on Thanksgiving Day, 1926. Actual work, beginning with the excavation for the foundation, started a few days later, and in spite of almost continuously unfavorable weather conditions, every phase of the construction work was carried out in record-breaking time. Erection of steel began March 22, 1927, and was completed September 7, 1927. The exterior was finished February 1, 1928.

Work on the interior of the lower floors had been started and carried on even before most of the upper floors had been started, and on about April 1, 1928, the building was ready for occupancy. The task of moving the offices from the old location in the Railway Exchange Building to the new home, a tremendous task in itself, was accomplished with almost no confusion or loss of time from regular office routine, being completed May 1, 1928.

Erected on a site 100 by 192 feet, the building rises 22 stories to a height of 270 feet above

street level. Provision has been made for adding eight additional stories when more space is required, and when that is done the building will be 395 feet high, making it the tallest structure in the city. All of the latest ideas in office building construction have been embodied in the plans. It is of fireproof construction throughout and the illumination, ventilation and elevator facilities are of the latest and most approved type.

An important feature is one of the largest P.A.X. telephone boards in the city of St. Louis and the entire Southwest. This board, from which and to which radiate more than 600 telephones, is automatic in all operations. Nine trunk lines through which the general offices can be kept constantly in contact with all other offices over the more than 14,000 miles of rail in eleven states also extend from this board which might well be described as the "nerve center" of the railroad, through which practically all phases of operation are carried on, especially the work connected with transportation and the proper and efficient handling of trains.

The architects who designed the building kept in mind the fact that eventually it would be a part of St. Louis Memorial Plaza and pains were taken to make sure that the Missouri Pacific's new home would harmonize with its future neighbors. The modern, American set-back style of architecture was followed. The exterior walls were finished in buff terracotta. The building now stands as one of the most beautiful in St. Louis, a worthy addition to the Plaza group and a monument to those who conceived and carried out the plans.

Cleveland Terminal To Be Electrified

All passenger trains in and out of Cleveland will be handled by electric locomotives after January 1, 1930, the Cleveland Union Terminals Co. has announced. The newly electrified zone is to include about 16 miles of multiple track route, extending from Linndale on the west through the new terminal station to Collinwood on the east. A portion of this electric zone will be on the right-of-way of the New York Central and Big Four lines, and the remainder on the Nickel Plate. The power distribution will be of 3000 volts direct current, with catenary overhead construction. The motive power for the first operation will include 20 204-ton geared-type passenger locomotives. These locomotives are being built jointly by the American Locomotive and the General Electric Companies. They will have ample capacity for handling Pullman trains weighing as high as 1275 tons trailing, equivalent to 17 75-ton Pullman cars. Each unit will weigh 204 tons, with 150 tons on the driving axles. The six geared driving motors will have a total rating of 2900 horsepower at the one-hour rating, and 2465 horsepower at the continuous rating. At each end of the locomotive is a two-axle guiding truck designed to insure successful operation at high speeds. The total length of the locomotive is 80 feet, while the length of the cab is only 52 feet. The running gear includes two three-axle Commonwealth Steel trucks coupled by an articulated joint and two two-axle guiding trucks, each carrying a weight of about 27 tons.

The motors are of the usual design for articulated truck-type locomotives, being carried at one side on the driving axle and at the other on the transom through a spring nose suspension. Two cushion-type gears are provided for each motor, one at each end of the shaft meshing with a pinion on each end of the motor. The gear ratio is 79/29. The control is designated as PCL non-automatic, and includes provision for the operation of two or more locomotives in multiple unit. The master controller has main handle, a reverse handle and a field control handle, with suitable interlocking to prevent improper handling. The control provides a total of nine running positions and 33 resistance steps.

You May Smoke in Erie Diners

Much embarrassment, and even a law suit, has been encountered on a western road over the perplexing question of whether a man, on a very hot day, might be served in the diner minus his coat and vest. The answer was in the negative. So far as known to this writer no smoking ever has been permitted in dining cars by any railroad, not, at least, in the United States.

Now comes the interesting announcement of C. C. Howard, passenger traffic manager for the Erie, that smoking will be permitted in that road's dining cars. "In keeping with the times," says Mr. Howard, "this new rule is made possible by the fact that the Erie's new dining cars are equipped with an improved ventilating system which changes the air every three minutes, and thus guarantees against any unpleasant accumulation of tobacco smoke even when the cars are filled to capacity."

Hereafter every menu card in the Erie diners will bear the legend: "You may smoke." And the invitation is extended to the women as well as to the men, declares Mr. Howard. "In fact," he explained, "the new regulations come largely as the result of requests from women who wish to smoke during or after their meals.

"A restaurant efficiency man has suggested that people will linger longer at table when smoking is permitted. But we are not trying for rapid turnover of our dining car clients. We want everybody to be happy and comfortable, and if passengers like a leisurely afterdinner chat over their cigar and coffee, we shall be glad to permit it."

"A stunted mind means a stunted growth."

Out Goes the Wooden Equipment

The Pennsylvania's Big Order

By B. J. Sparks

BEFORE the end of the present year, the Pennsylvania Railroad will have received deliveries, from leading equipment companies, upon the largest combined orders for steel passenger cars ever placed at one time in railroad history.

These orders include 300 standard all-steel 70 foot passenger coaches, 210 standard all-steel 60 foot baggage cars, 20 standard all-steel 70 foot combined passenger and baggage cars, 45 all-steel theatrical scenery cars, and 29 all-steel gas-electric rail motor cars. In addition, 25 all-steel horse express cars, for the transportation of valuable horses by express service in passenger trains, have been ordered. The total of these orders is for 629 new cars, representing an expenditure of approximately $15,000,000.

Though important in itself by reason of the number and cost of the cars involved, the placing of these orders assumes much greater significance from the fact that delivery of the new cars will make possible the retirement of the last wooden passenger car from regular steam service on the Pennsylvania Railroad. All passenger cars then in normal operation on the company's steam lines will be exclusively of steel construction throughout.

Twenty-two years ago, in 1906, the Pennsylvania Railroad built and placed in service the first all-steel passenger coach to be constructed and operated by any railroad. In the same year the steel car was made standard for the Pennsylvania Railroad System and the construction of wooden cars was discontinued. The Pennsylvania was the first railroad to adopt all-steel passenger equipment as standard and the first to place in service an all-steel steam passenger train. In 1914, at the outbreak of the World War, so rapidly had the Pennsylvania built steel cars that more than a third of the road's passenger equipment was of all-steel construction.

One of America's Primitive Railroad Trains, Reproduced From a Wood-cut of 1832. The Cars Were Practically Stage Coaches Fitted for Rail Operation.

With the delivery of the new cars now on order, the system's passenger car equipment will be practically 100 per cent steel. When this is accomplished a total of 5501 all-steel passenger train cars will be regularly operated in steam and electric service, including baggage, mail, express and dining-cars, representing an investment of approximately $100,000,000.

The Pennsylvania Railroad now owns approximately one-fifth of all the steel passenger cars in the country and though its lines are but one-twentieth of the nation's total railroad mileage, it handles 18 per cent of the entire passenger traffic.

In 1902 the Pennsylvania Railroad began actively to study the

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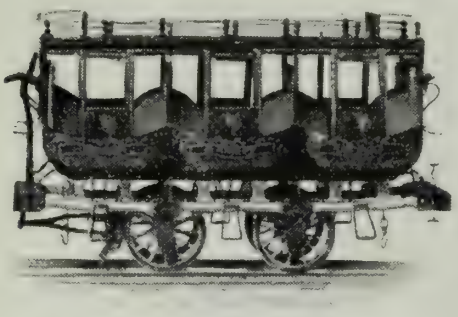
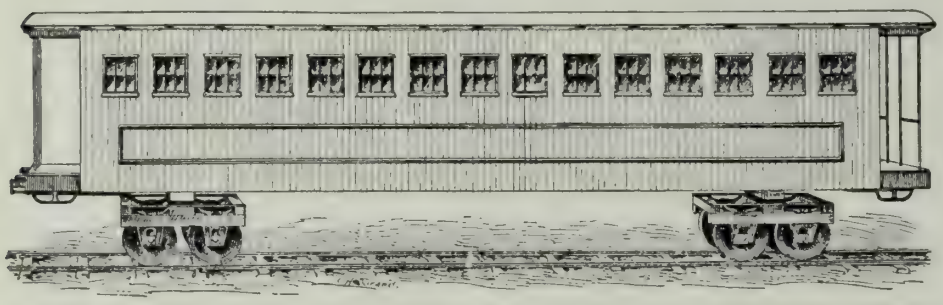
The picture at the top of the page shows the Pennsylvania Limited as it appeared in 1898. This is said to have been the first through de luxe express train, operating between New York and Chicago. The steam rising from the first car is the exhaust from the turbine which drove the electric generator supplying electricity for the entire train, the first time such an innovation had been used. The picture was taken just west of Harrisburg.



One of the Earliest Railroad Passenger Cars Used in This Country.

possibility of building a stronger, safer and more comfortable passenger car than the wooden coach then in universal use. Trains were getting longer and heavier, and there was need of greater strength and more durability in car construction to withstand the wear and tear of daily service. While the introduction of the steel underframe met this condition to some extent, the wooden car body still remained a problem from the standpoint of safety and fire prevention.



A Further Evolution of the Coach. This Car Was Operated on the Jeffersonville, Madison & Indianapolis Railroad in 1847. This Line Became a Part of the Pennsylvania System.

The development of an entirely new type of car of all-steel construction received impetus from the plans then taking definite form for the company's great new terminal project in New York City. These plans involved the construction of tunnels under the Hudson River, as a means of providing access to the proposed new station in the heart of Manhattan. The undesirability of operating wooden cars through such tunnels was obvious and supplied an additional incentive for working out the design of an entirely new type of car which should be free from the objections inherent in the old form of wooden coach construction.

All of these influences worked together, with the result that in 1904 the various studies which had been made took the form of definite plans and in June, 1906, the first steel passenger coach was turned out of the company's Altoona works. This car was 67.5 feet long over all, or about five feet longer than the wooden coach then standard. It had a steel underframe with steel sheathing up to the roof. The inside finish was largely composite board, while the roof was of wood covered with canvas and copper.

This new steel car, while marking a distinct improvement over the wooden coach, did not satisfy the railroad management. They tried again. This time a 70 foot car was constructed, and wood was practically eliminated. It found a place only in minor interior fittings, such as the seat arms, window frames and sills. This all-steel car was completed in 1907, and since it took the rails none but all-steel cars have been built for the Pennsylvania Railroad service.

Immediately following on the heels of the all-steel coach came a steel baggage car and three steel mail cars. Orders were then placed for 200 all-steel cars of various kinds, including coaches, combination passenger and baggage cars, and dining cars, and these were placed in service in 1908. Since that time the company has been constantly retiring its wooden cars. Last year alone a total of 559 wooden cars were taken out of service. When the cars just ordered come into use, the 200 wooden cars remaining will be utilized only for emergency or other extraordinary purposes. They will be progressively retired even from these uses.

The story of the evolution of the railroad passenger coach in America is full of romance and interest. First came the stage-coach fitted with flanged wheels for rail operation, imported in its entirety from England. Then appeared another early type, just a box on wheels, lighted by four small windows with immovable sash, and having a diminutive platform at each end. The only source of ventilation was a ten-inch flue placed in the center of the car. As years went on and travel increased the cars began to lengthen and the windows grew in number. The seats, at first hard and uninviting, were comfortably padded and cushioned, and, instead of freezing in cold weather, passen-

A Still Closer Approach to the Modern Car. This Was the Standard Pennsylvania Coach of 1875. It Was All-Wood, With Gas Lamps and a Wood Stove for Heat. It was 53 Feet Long and Seated 54 Persons.

gers enjoyed the warmth of the corner wood stove.

The candle or tallow dip was replaced by the oil lamp, and that in turn by gas lights, and improved springs were introduced in the trucks. Wash-rooms and water coolers began to appear along with improved systems of ventilation, including windows which could be opened and closed at will.

The Pennsylvania Railroad down through the years has always been eager to give its passengers the advantages of the very latest safeguards and conveniences in travel. It was the first railroad to adopt the air brake, a device which revolutionized railroading and established new high standards of safety and efficiency in train operation. It was one of the first railroads to discontinue the construction of cars with open platforms, substituting therefor the enclosed vestibule, used in its perfected form in the all-steel passenger car of today. The enclosed vestibule affords greater protection to passengers moving between cars, and assures a maximum of safety in boarding and leaving trains.

As early as 1882, the Pennsylvania Railroad began to experiment with electric lights. The first train in the world to be fully equipped with electric lights was the "Pennsylvania Limited," the company's pioneer New York-Philadelphia-Chicago flyer, which made its first trip with the new illumination in June, 1887. Electricity was used to light Pennsylvania Railroad coaches long before its introduction generally in American homes.

The heating and ventilating systems of the company's cars have undergone constant improvement along with the other features of car construction. More comfortable seating arrangements have been adopted from time to time, and the riding qualities of the cars materially improved.

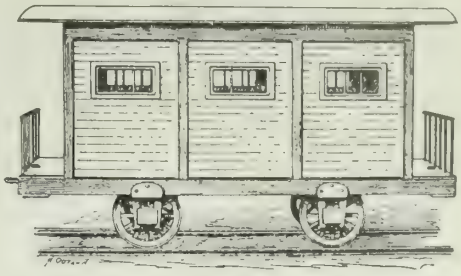
These constant efforts toward improvement, based on intensive study and research, have resulted in a Pennsylvania Railroad passenger car which is the embodiment of safety, comfort and convenience.

All-steel throughout, the cars have enclosed vestibules; the most efficient heating, lighting and ventilating systems devised for railroad use; seats made for comfort and convenience; windows which fit snugly and yet move freely at touch; adequate wash-room facilities, and easy riding trucks, which give a smooth, even movement without jar or side motion.

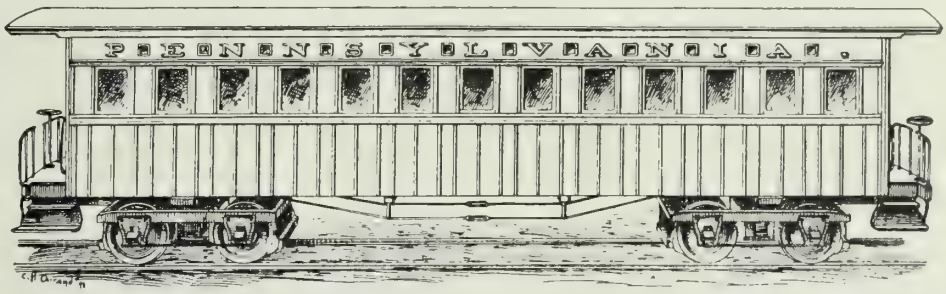
Pennsylvania Railroad coaches are the only railroad cars in the world to be ventilated and heated by the same scientifically designed system as is approved for use in theaters, schools and other public places. The movement of the train draws fresh air into the car through receptacles on the roof. The air is then carried to ducts beneath the seats, where it is passed over heat coils and thence into the car proper. In winter, passengers breathe warmed fresh air, while in summer the heat coils are, of course, inoperative. Stale air is passed out of the car through ventilators located above the electric light fixtures. This system of ventilation, which distributes a continuous flow of fresh air through the car under every condition of weather, has been enthusiastically commended by the health authorities.

The lighting system of the Pennsylvania Railroad coach is designed to provide a generous flood of light throughout the entire car. Current is obtained from an axle generator or storage battery installed in each car.

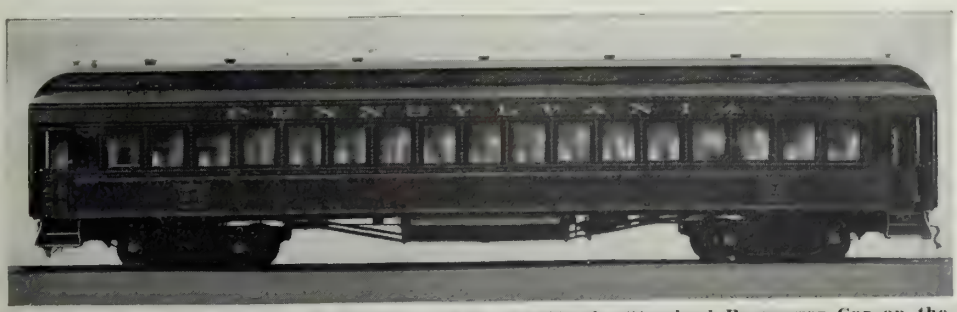
The interior appear-



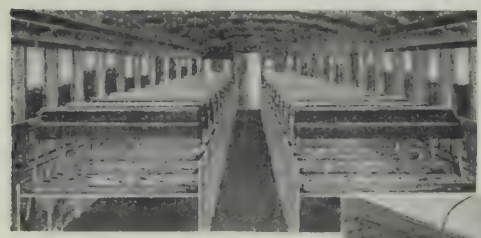
This Car Ran on the Portage Railroad in Pennsylvania in 1834.



This Was the Standard Pennsylvania Railroad Passenger Coach in 1862. In Such Cars As This the Civil War Soldiers Rode to the Front.



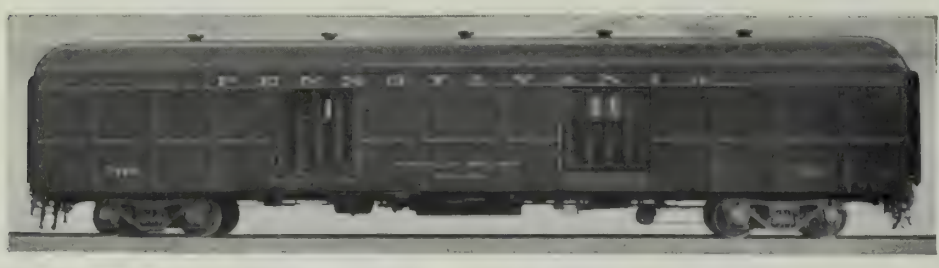
Here We Have the Perfected Wooden Coach of 1898, the Standard Passenger Car on the Pennsylvania Just Before the Advent of All-Steel Equipment. It was 62 Feet Long, Seating 66 Persons.



The Modern Car, Right, and the Early Pioneer Passenger Coach at the Left, Above. Some Contrast in Ceilings, Seats and Lights.

ance of the cars is being constantly improved by the use of pleasing decorations and contrasts in the color schemes. Light and cheerful ceilings are among the most widely appreciated features.

The latest innovation in Pennsylvania Railroad passenger car equipment is the roller bearing. As early as 1915, the Pennsylvania Railroad began experiments to determine whether anti-friction bearings could be used to advantage in passenger car trucks. Several hundred Pennsylvania Railroad passenger coaches are now equipped with roller bearings and they have been made standard for passenger carrying equipment. The Pennsylvania was the first railroad thus to standardize roller bearings on its passenger cars.

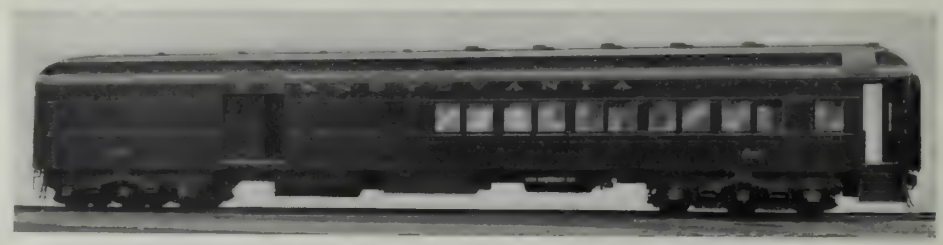


The Standard, All-Steel Pennsylvania Baggage Car, a Little More Than 63 Feet Long, Weighing 87,600 Pounds, and Carrying 40,000 Pounds of Baggage.

The great advantage of roller bearings lies in the ease with which trains so equipped can be started from a standing position. To start a train equipped with the old bearings an excess of power is required over that which will easily handle an even heavier train once the cars are in motion. It has been necessary to have a great reservoir of power to get the trains under way; this power very seldom being used to capacity after the cars are started. With roller bearings a large part of this difficulty is eliminated.

A roller bearing train requires 80 per cent less power to start on a straight level track than is necessary for a train equipped with the old bearings. The locomotive gets the cars under way smoothly and easily with an absence of all jar and jerk. After a speed of two miles an hour is reached the roller bearing train is no easier to haul than a train equipped with the old type bearing. The roller bearings, however, have eliminated the need for excessive power used only in starting trains and have made the start much more gentle and easy.

And the work goes on. Studies are constantly being made by the railroad to improve types of couplings, air brake systems, trucks, running gear, interior equipment; in fact, every feature of car construction. Nothing escapes the unceasing scrutiny of the experts in the research departments. The Pennsylvania Railroad is not satisfied unless it operates the safest, the most comfortable and the most efficient passenger cars which it is possible to design and build.



The Standard Combination Passenger-Baggage Car, 77.3 Feet Long, Carrying 44 Passengers and 35,000 Pounds of Baggage. This Car Is All Steel, Electric Lighted, Steam Heated, and Weighs 129,000 Pounds.

Lindbergh in 1934

In well-informed quarters it is understood that the "house on the corner," J. P. Morgan & Co., has taken Colonel Lindbergh's funds in hand for investment. Such funds are said to amount to between $300,000 and $400,000, which the flying colonel has accumulated in about a year from his book, numerous articles and prizes. It is further said that J. P. Morgan, personally, will give considerable attention to the proper investment of these funds. It will be interesting to note the size of Colonel Lindbergh's fortune five years from now under such able management.

A stern discipline pervades all nature, which is a little cruel that it may be very kind.—Spencer.

Looking Backward and Ahead

Cutting Costs and Increasing Tonnage

By H. W. Barker

GOING back a few years, but well within the memory of the older railroad men, we find the little brass-bound locomotive at the head of the train, a thing of beauty and a joy forever; the individual property of the engineer, monarch of all he surveyed. He not only owned the locomotive, but he had a servant, a fireman who, when he was not engaged in shoveling coal, kept the jacket wiped, the brass sparkling, front end and stack painted, the boilerhead beeswaxed, and if he happened to be a colored gentleman on one of the southern lines, he also blacked the engineer's boots.

At the other end of the train we found the little red caboose, the property of the captain, or conductor, decorated inside with pictures from the Police Gazette, usually of girls in abbreviated costumes.

Between the locomotive and caboose there was a mixture of cars of every description. In those days they pulled "cars" and not "tonnage," and many were the quarrels between the engineer, aided and abetted by the conductor, and the yardmaster, because there were too many cars, in their opinion, between the head end and the hind end. The yardmaster, of course, wanted to keep his yard cleared, the engine and trainmen wanted to get over the road, and the lighter the train, the quicker and easier they accomplished their object.

This condition prevailed until some unromantic operating officer, probably a superintendent, came to the conclusion that the only thing that really brought in any revenue was the cars between the engine and caboose. Naturally, he decided that the more cars he could get between the two ends of the train, the more he would reduce his operating expense. In his endeavor to increase the number of cars, he soon learned that his locomotive was a little bit too small, so he made a demand for a larger locomotive.

While larger locomotives meant heavier rails, more ties, better ballast, longer sidings, longer turntables, bigger enginehouses, more coaling stations and more water tanks, nevertheless he obtained what he asked for, his argument being too logical to warrant contradiction.

With a larger locomotive the duties of a fireman were reduced in one direction but increased in the other, i.e., the brass bands were eliminated from the jacket so that he did not have the outside brass to polish, and men were afterward assigned to wipe the jacket, paint the front end, and the stack. But to make up for this, the amount of coal he had to shovel was doubled, and frequently tripled. However, the operating officer who initiated this movement, was happy. He was not worrying very much about the fireman, but he soon realized that in addition to starting and pulling the train, he had to have something to stop it more readily than the old-fashioned hand brake and the horny handed brakeman. So once more he put up a holler, with the result that the air brake was developed, followed quickly by the automatic coupler, friction draft gear, etc. And again he was happy, although as before, his happiness did not last any longer than it did the first time. The locomotive still was the individual property of the engineer, no other man being allowed to run it unless the engineer happened to be ill or compelled to lay off for some cause beyond his control.

One day the dispatcher called up the enginehouse foreman and told him he had to have an engine right away to take out a very important train that had just arrived. The foreman, in his genial manner, prefaced by a lot of profanity, told the dispatcher there was "nothing doing." The dispatcher, glancing at his train sheet, noticed that the 41144 had come in some time previously, and as she had made a good run, concluded she must be in good condition, and so asked the foreman what was the matter with this engine? The foreman replied, "not a damn thing, but the engineer has not had as much rest as he called for."

This started the operating officer thinking. He had noticed that when John Smith, who owned the 41144, laid off, and Tom Brown happened to catch it, that Brown managed to do just about as well as Smith, so he took the bull by the horns, told the enginehouse foreman he had to have that engine regardless of the regular man's rest, to send out an extra crew and he would take the responsibility for schedule violation or whatever the crime might be.

This scheme worked. Also it put another thought into the head of the operating officer, who as previously indicated, had no romance in his make-up. He came to the conclusion that if this was possible with one engine, why not with all? Therefore he decided that probably it might be a good idea to divorce the locomotive and the engine crew, and turn the engine back to its rightful owner, the railroad. This was the beginning of what was called pooling.

Of course it didn't go over easily. Not only the enginemen, but

the mechanical department raised all kinds of objections, but strange to say, as pooling was extended it was soon discovered that there were no real foundations for the objections that had been urged. That there was no material difference between John Smith and Tom Brown insofar as going over the road was concerned, and that if the engines were put in good condition on arrival, there was no reason why they could not give the required service regardless of the engine crew.

Therefore, the operating officer again was happy, at least for a little while, and during this time his insistence for more cars between the head end and the hind end resulted in a gradual increase in the size of the locomotive, with a few added refinements. Of course, being the man who made the most noise, the engineer had to receive first consideration. Therefore, when the engines increased in size, which made it a little more difficult to handle the old-fashioned Johnson bar a nice little power reverse gear was given the engineer, making it possible for him to hook her up or reverse her without any material effort. Of course, the fireman was not forgotten. A No. 4 scoop instead of a No. 2 was handed to him, the theory being that the larger the scoop the fewer scoopsful of coal he would have to throw in handling a ton. Apparently the fireman did not always appreciate this consideration, as we frequently found him throwing away his No. 4 and going back to the No. 2. This regardless of the fact that the fire door opening had been increased so that it would not interfere with the use of the No. 4 scoop. Later on the fireman was also given a power operated fire door, because it was found when the demand on the boiler became heavy, they either could not keep up with the procession if he swung the door at each scoopful, or else he had to leave the door wide open until he had completed his charge, and this meant a variation in steam pressure, to say nothing of the waste of fuel. Later on as the locomotives grew still larger, and beyond the capacity of the fireman to keep them supplied with coal, he was handed a mechanical stoker. But while a few firemen were so favored, there were still hundreds of locomotives in service that depended altogether on the coal shoveling capacity of the fireman, with the result that the tonnage had to be adjusted to suit his physical limitations, instead of being adjusted to the capacity of the locomotive. In many cases this condition still prevails.

The operating officer again was happy, but as before, only until he had worked out another scheme, and this scheme was more far reaching in its effect than anything that previously had been conceived. He came to the conclusion that if a locomotive could successfully negotiate a hundred mile division, there was no reason why it could not run 200 miles, and if 200 miles, why not 400? It was a piece of machinery, no more intricate than an automobile, which in the hands of the most indifferent driver will still go on indefinitely while there is gas in the tank. Past experience had also taught the operating men that it made no material difference whether it was John Smith or Tom Brown at the throttle. Therefore, he decided that instead of stopping the locomotive at what was called the home terminal, i.e., running it over only one division, he would simply change crews at that terminal and let the locomotive go on. This was the first of the extended runs, and about the greatest step that has been taken to date in economical operation.

Perhaps all do not appreciate exactly what this meant. In the beginning, you will recall the locomotive belonged to the engineer. It was then handed back to the railroad, becoming the property of the mechanical department, but now it becomes the property of the operating department, and the mechanical department's only concern in it is maintenance. This being the case, there is no question but that the operating officer, although he is again happy, will soon realize that he has quite a number of locomotives on his division whose capacity is limited to the physical capacity of the fireman, that whatever this may be it fixes the productive capacity of the entire crew. Realizing this, the operating officer will think it strange that the one man who needs the most help receives the least.

Present day operating, regardless of whether it is a railroad or any other industry, cannot be circumscribed by the physical limitations of any one man. Mechanization is the watchword. While the man is still needed, the actual work is now done by machinery, and the output of the man is therefore multiplied by the capacity of the machine which he is operating. This, when applied to a locomotive, means that instead of the locomotive power output being limited to the capacity of the man, it is raised to the capacity of the locomotive, which in every case means more ton miles per hour. This was the real thought in the mind of the operating man from the time he began to realize that the revenue is brought in by the cars between the engine and the caboose.

While mechanical men are of course, interested in the power output of the locomotive they design and maintain, they are not as much concerned in the power output as is the operating man. To the mechanical man, any adjunct or apparatus added to the locomotive simply means increased cost of maintenance, while to the operating man it means increased revenue. If the increased revenue more than offsets the increase in maintenance, the money expended for such capacity increasing adjuncts is well invested.

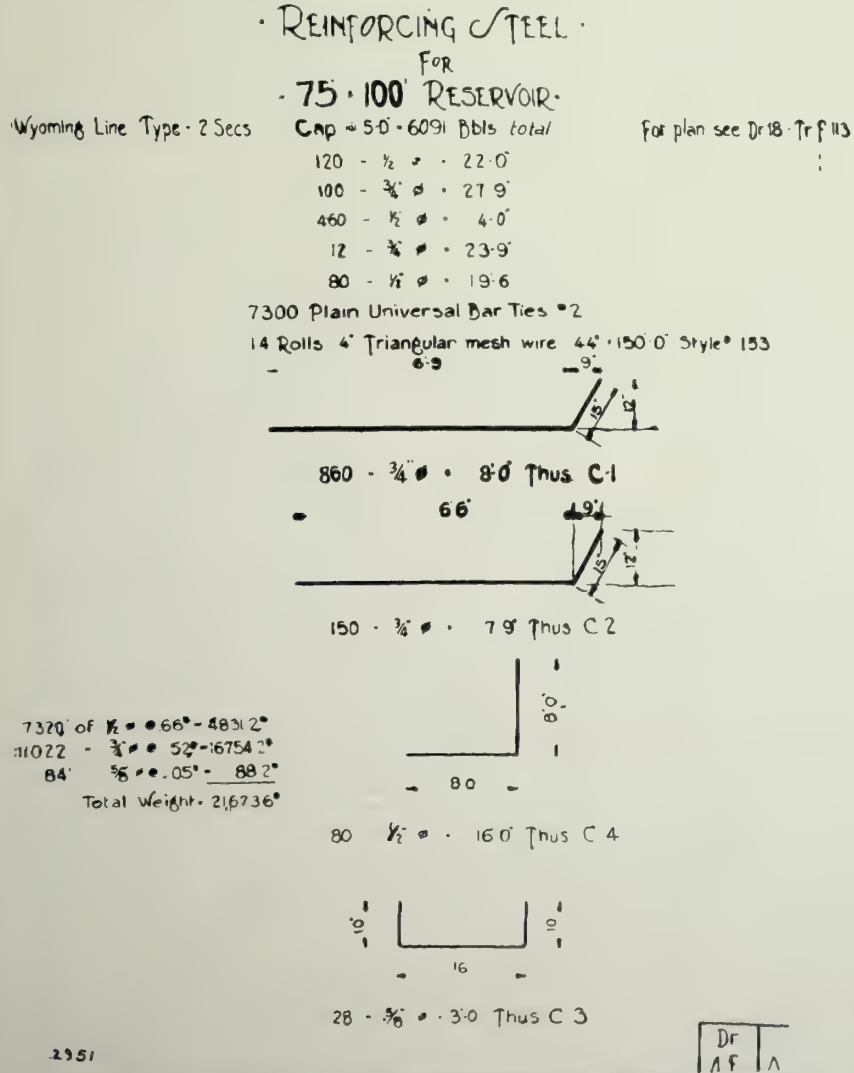
We have had a lot to say about the change in handling and ownership of the locomotive. It might be well to add this one thought in connection with that sacred sym-

bol of authority, the little red caboose behind the train. Some day, if the thought has not found birth already, some operating officer will come to the conclusion that if a locomotive can be run over two or more divisions successfully, the same system might be applied to a caboose, in this way saving the 40 minutes terminal delay due to exchanges of cabooses, and at the same time saving or eliminating about 50 per cent of the cabooses in service. When this has been accomplished, then no doubt the operating officer's cup will be filled to overflowing, and he will again be happy—until a new thought strikes him!

Order and Plans by Wire

The Sinclair Pipe Line Co. of Tulsa, Okla., was in urgent need of reinforcing material for building a large reservoir at La Rose, Ill. The order called for 1,890 reinforcing bars with 1,100 bends, 7,300 bar ties, and 14 rolls of wire mesh, and had been given to W. T. Branson, Tulsa representative of Jos. T. Ryerson & Son, Inc., Chicago, for personal and quickest possible action.

As the order was in the form of a blueprint with sketches of the bends, etc., it could not be transmitted by telephone. It was late in the day so Branson sent the order and sketch on a fast mail train to St. Louis. The order was received at the St. Louis plant in the morning. As La Rose could be served quicker from Chicago, the order was immediately telephotographed to the Ryerson Chicago plant.



This Is a Reproduction of the Telephotograph Plan and Specification Received by Jos. T. Ryerson & Son, Chicago, for An Urgent Steel Order.

It was 3:30 p.m. when the American Telephone & Telegraph Company's special messenger panted into the Ryerson Chicago plant with the telephotograph and accompanying telegraphic order. Checking or confirming the specifications were unnecessary because the telephotograph was an exact copy of the original blueprint.

The reinforcing steel department wrote up the order in the usual way and copies were in the shop at once. The bonus time chart showed 3.1 hours' shearing time and 3.5 hours' bending time, but crews doubled up and in one hour and 25 minutes the material was ready. In the meantime the traffic department had lined up a car and in 30 minutes more the reinforcing for the Sinclair job was moving out of the plant. The car number and routing were then wired to the Ryerson St. Louis plant for the customer's information. The carload was switched from the Pennsylvania to the Santa Fe Railroad, and left Chicago that night. It reached La Rose, Ill., at 4:20 in the morning ready for use in the reservoir that day.

This is the first reported use of the telephotograph for speeding steel service and points the way to more general use of this new and valuable aid to industry.

Anyway, They Can Sleep

Having lived in Trinity County, Cal., for 40 years or more without having been out of the county and without ever having seen a railroad and a train of cars, Miss Esther M. Potillo and Miss Lucy Potillo, sisters, were taken to Redding a few days ago just to see the cars come in. The sisters were born in Weaverville and are such readers that they are well abreast of the outside world, even if they have not seen much of it. They returned to Weaverville the same evening, for in all their lives they have never stayed over night away from home.

What the Papers Say

THAT a halt needs to be called on federal regulation goes without saying. No other private business is so fully under the jurisdiction of the Washington bureaucracy as is the railroad business.

The railroads have a tremendous fight ahead of them. They must not only contend with the varieties of competition mentioned, but they must contend with rising labor costs, rising material costs, rising taxes, and the demand for more speed, more comfort, more luxuries even, on their trains. In fairness to them they should be allowed the largest amount of initiative consonant with the public interest in working out their problems. — Houston Post-Dispatch.

Prices and Profits

What the farmer and all those who use the railroads for freighting must realize, is that an increase in price may not mean an increase in profit. The law of comparison must be considered. Because a shipper pays more to send a product now than in 1917 certainly does not mean he is paying greater profit to the railroads. The increase in general prices and costs plays its all-important part. The railroads, like any corporation, business or wage earner, are entitled to make a reasonable percentage of profit on their investment or labor. Railroad rates are established under strict government regulation in the interest of both the public and the carriers. The people are beginning to realize this and appreciate the superlative service rendered by American railroads. It is the worst form of hypocrisy to condemn the rates of common carriers and public utilities without at the same time condemning our whole system of public regulation by state and nation. Undoubtedly both the rates and the commissions need checking up occasionally, but so does every farm, grocery store or manufacturing plant. Public regulation of rates does not mean automatic rate reduction, it means the establishment of rates adequate to permit the rendering of satisfactory service to the public under good management, the payment of good wages and a return of reasonable dividends to investors.—Rockford, Ill., Register Gazette.

But It Was

It is manifest that the courts and the Interstate Commerce Commission must recognize not only the right of the carriers to earn an income that will induce investment in their securities, but—assuming efficient and economical operation —that the welfare of the nation demands they shall do so. Whatever the outcome of the cases now before the courts, which seek to arrive at an agreement on methods of valuation, it is not conceivable that this dominating factor in the controversy will be ignored.—Baltimore, Sun.

Proverbs 3:13

There is no gainsaying the fact that the United States now enjoys a transportation system that is high up toward the peak of perfection in efficiency. The railroads are rendering better service to-day than they have ever rendered before; but their balance sheets show that the railways of the country, as a whole, are not earning what has been held to be a fair return on their investment. If the railroads are to continue to serve the country efficiently it is plain that they must not be impoverished; and good railway service is so essential to our prosperity and well being that the Interstate Commerce Commission should not be tempted to overlook the financial welfare of the roads when considering the many petitions made them for a reduction in rates.—Nashville Tennessean.

The Tie That Binds

Distance and time in that older day were thought of as barriers to be accepted, making the commerce of peoples slow and costly and enforcing a condition of separate community life. The unification of thought and knowledge now accepted as a basis of conduct of affairs was impossible. The railroad and telegraph were the great precursors of other mechanical means for transforming the world. It may or may not be a better world; but it surely is a far different world, because of what has been done in a hundred years, and if it is not an improved world, the fault is with people, not with mechanics.—Rochester, N. Y., Democrat-Chronicle.

Efficiency Did This

The modern view of railroads is not brought about by any change in the mind of man during the past century. It is due solely to the type of services which the railroads, under capable management, have rendered. If the public has ceased to look upon railroads as engines of destruction and upon trips on railroads as dangerous excursions it is because any fears that may have justified this attitude in the mind of the public of a century ago have been dissipated by the performance of the railroads themselves.—Richmond, Va., Times-Dispatch.

Nothing is easier than fault-finding; no talent, no self denial, no brains, no character are required to set up in the grumbling business.—Robert West.

Editorial Comment

An Acknowledgment

ONE HEARS much about theatrical managers giving the public what it wants, but none of these gentlemen really knows what the demand is until his offerings have been subjected to the acid test of the box office. An editor faces precisely the same problem. He makes a magazine as he believes it ought to be made, basing his opinion partly on experience but mostly on his own personal taste. If he has been reared in the same general environment as that in which his readers have lived he ought to come pretty close to the mark.

Except with respect to the mistakes he makes or in the handling of controversial questions, an editor does not, as a rule, receive many letters from readers. Ordinarily, they are quite willing to let the good work proceed. It is, therefore, with a feeling of very sincere appreciation that we employ this means of acknowledging, gratefully, the many hundreds of letters received in the last few months from readers of this magazine in every part of the United States, Canada, Mexico, and countries across the seas. To reply in any other way to these expressions of good will would be impracticable at present.

Every one of these many letters has been a source of real inspiration far more valuable to the publisher and the editor than may be imagined. To know that one's product is approved by the consumers is as comforting as it is cheering. To consider the suggestions of these thoughtful contributors is a delightful duty to be undertaken seriously at the earliest practicable opportunity.

Meanwhile, the men who make the magazine are realizing more keenly than ever the responsibility imposed upon them by these expressions of friendly interest. The obligation of living up to the good opinions the readers have set down in these letters is a grave one, equalled only by the editor's knowledge that he can not know personally all the kindly disposed men and women who write to him, and his constant regret that it is physically impossible for him to reply even to a very few of their well-meant advances. Instead, he accepts gratefully this occasion for assuring these correspondents of his continued interest in maintaining and improving the magazine, with particular attention to the human-interest elements in transportation which, it is a pleasure to say, have been so graciously received everywhere.

Why Men Leave Home

Some persons think themselves smart when they make wise cracks at traffic men, little consideration being given to the tremendous strain under which these gentlemen work if at all. In a recent decision by the Interstate Commerce Commission investigating live stock rates from Texas to Indiana we find this highly illuminating paragraph:

> These rates are subject to the following rule:
> To an intermediate point of destination which is not named herein, but which is situated directly between two points on the same railroad to which rates are published herein, the rate to apply will be the same as the rate to the two points between which located when the rates to such points are the same, and the higher rate shown to either of the two points between which the intermediate point is located when the rates are different, provided no specific rate on the same commodity to the same point of destination is published in some other tariff.

Any reader of this magazine who can tell what this means and do it in 500 words without becoming abusive will be entitled to a steel falcon pen-point and a pad of yellow paper, free.

It's The Life of Trade

This magazine announced in its issue of July that the air rate from Los Angeles to San Francisco was $50. In the present issue another successful line announces its rate for the same journey to be 50 cents less on one way tickets and considerably more of a reduction for round trips. While the type for this latest announcement was in preparation along comes a company with capital of 10 million dollars and a fare of $35 to San Francisco, and proportionately lower rates on the Pacific Coast, larger ships and still more attractive arrangements for the public.

Keeping up with the air news is like trying to keep up with one's children after their return from college. It can be done only through the expenditure of strength, good temper, much money and inexhaustible credulity.

Aviation must gird itself for a life battle pretty soon, just as the automotive industry is doing, and just as the railroads had to do in the days when they still were pioneers. The dead hand of government, federal and state, has been on railroads for more than 40 years. Despite this fact they have grown better and bigger. When someone has figured out how to tax an air transport company's right of way—as certainly will be done—then these enthusiastic pioneers in transportation will learn what a handicap capital has to accept in this land of the free.

A Business Man Inquires

We have a letter of inquiry from a Chicago business man enclosing a recent advertisement of the Chicago & North Western Ry., describing the handsome new trains it began running late in August be-

tween Chicago and Omaha and Chicago and the Twin Cities. These trains were on exhibition in the Madison Street Terminal August 18 the writer says. They probably are, he continues, as fine examples of railroad equipment as may be seen anywhere. The company's advertisement says they are the finest in the world, the passenger department's liberal superlatives being understood as well within the truth.

Our correspondent, a good friend of the railroads, is amazed, he says, that companies facing a constant decrease in passenger receipts, still continue to provide such trains for out-of-pocket traffic. "This road," says the letter-writer, "has proved that its suburban business is conducted at a loss. Probably this is true of all railroads. Certainly we are told none of them makes any money on this business, suburban, local or through. The Chicago & Alton, in receivership, runs magnificent equipment between Chicago and St. Louis. Its mahogany and rosewood trains were put on during receivership, and therefore with the approval of the court. I have heard many persons say within the last 48 hours that railroads must be making money when they provide such wonderful trains for a losing business."

We quote the letter as a matter of privilege and withhold the writer's name under the same rule. Public reaction certainly is interesting.

Railroad Facts

We should not like to do or say anything to encourage the making of more laws, but if there were some enactment requiring all shippers everywhere to read and then pass an examination concerning the information contained in a small booklet just issued by the Western Railways' Committee on Public Relations, it might save a lot of trouble for these persons and millions of dollars for the railroads. This is Railroad Facts No. 6, covering the operations of railroads up to, and including 1927. The booklet is particularly valuable because it contains the final authoritative figures of these operations up to December 31, last year, and is free from the estimates and guesses published usually in January when no one, except the prophets, has any worth-while idea about what actually has happened. The booklet ought to be in every business man's hands. Every railroad employe should read it, but of course never will because he won't have the chance. Comparatively few shippers ever will see it for the same reason.

The Postal Deficit

The postmaster general, Mr. New, says his department probably will have a deficit of a hundred millions for the fiscal year, as if this were anything novel, and then tries to blame it to the long deferred increase in mail pay for the railroads. Commenting on this situation the New York Times says, gravely, "Coming on top of legislation providing higher pay for postal workers the latest development makes it harder than ever for the postoffice department to make both ends meet." Encouraged by this sympathetic expression the postmaster general deplores the fact that "one body fixes our rate of receipts and another the rate of expenditure," meaning congress and the Interstate Commerce Commission.

No sensible person or politician ever supposed the postoffice department could or would make both ends meet. A deficit has been customary for generations, probably ever since the department was founded. The postal service always has been a charge against the people, and it always will be until it is transferred to private ownership and operation. The founder of a great mail order business, a Jew of very high standing, offered many years ago to take over the postoffice department, reduce the postage rate to one cent for letters and make a profit for himself. But of course the idea made no great hit with the political powers at Washington because such a scheme would deprive them of their spoils, the postoffice appointments.

The postal service was created to maintain communication among the people, and without this we should not long be a united nation. To give good service under government operation the department always has been in debt, and the people have paid the bills. In the present instance the people either had to pay a fair price for having their mail transported or they had to pay higher railroad rates. By increasing the rate for carrying the mail the government is merely settling with the owners of railroads who should not, in any possible circumstances, be expected to put their property to public uses without just compensation. They have been doing this for a long, long time. That it took nearly four years for the Interstate Commerce Commission to decide the case certainly should acquit that body of the laughable charge of favoring the railroads. The mail pay case was handled with about as much speed as the famous Nickle Plate merger.

Mr. New's plaintive wail about one body fixing the rate of receipts and another the rate of expenditure in the postoffice department must have the tribute of a tear from the railroads. They have been operating under precisely that condition for years. The postoffice department should not be operated in any other way while the government continues to own it. And it ought to pay its employes decent wages. It never has done this, and even with the recent increase it is far from achieving respectability. Mail carriers and other postal employes have been shabbily treated for generations.

Warning for Bus Builders

The recent accident near Red Wing, Minn., in which four men were burned to death and six others were seriously injured, surely ought to suggest some-

thing worth while to builders of buses, especially when all railroads are discarding wooden equipment for passenger business in favor of steel.

The bus, carrying ten passengers was on its way from Chicago to Minneapolis. Five miles north of Red Wing it collided with a truck on a curve, swerved into the ditch and immediately caught fire. Fed by fuel from a broken gas line, the flames enveloped the coach in an instant, and frustrated all attempts to reach the victims. Some were hauled through broken windows but not before they were badly burned. None of the dead could be identified, they were so terribly burned, and all the baggage was consumed.

This reads much like the report of a railroad wreck of years ago before steel coaches were adopted. Railroads have learned the lesson. Bus builders will have to give thought to this subject.

Penalizing the Railroads

This magazine drew attention, last spring, to the fact that at the very time the Interstate Commerce Commission ordered a cut of 13 cents a hundred pounds on deciduous fruits from California on the ground that this industry was unprofitable and needed help under the Hoch-Smith Resolution, some of the largest fruit companies of the state reported higher earnings than they had had for years. Some of the producers, it is true, had been losing money but this was because over-production between 1921 and 1926 had caused a shrinkage in prices. At the time the reduced rates were enforced the retail price of grapes in New York, which is itself a large producer of that fruit, fluctuated more in one day than three times the whole amount of the freight rate from California. But the commission penalized the railroads an eighth of a cent a pound to cut down the shipping costs, despite the tiresome fact that the railroads have not yet been able to earn the mythical fair return which the commission graciously said they might earn.

The facts fit smoothly into the situation affecting many commodities. For instance, in October a year ago, the commission ordered a reduction in salt rates from New York state mines to trunk line territory, the plea at that time being the need of stimulation for that business. And what was the result? The commission probably never heard of it, but the fact is that the railroads, in three months, lost $148,000 in revenues, and instead of increasing the salt shipments fell off more than 14,000,000 pounds.

Making Both Ends Meet

Even if the powers that be in Washington should agree to overlook it, we can not all ride in private cars. Some must use the smoker up ahead, and a few, the pity is, must take to the rods. But we can learn to be a bit more patient about whatever vehicle chances to come our way. It's largely a game of faith and hope.

All of which is a somewhat verbose introduction to a little story every railroad man should read. This seems to be the proper place to tell it because in this department we may preach some perfectly wonderful philosophies, helpful to others, but useless to ourselves.

In a western city, recently, a young woman sued for divorce from her husband, a railroad man, on the grounds of "insufficient support." The wife's plea didn't make much of a hit with the judge of the superior court. "Financial worries," said he, gravely, "and a battle to make one's weekly stipend go around to make both ends meet come in the lives of almost everyone. A young wife shouldn't complain too bitterly if her lot is not that of some of her more fortunate sisters who have wealthy husbands.

"So far as the money matters are concerned and the support of the plaintiff, that is incident to everybody's life, particularly for those just starting out and not very well launched in business. Everybody has these troubles trying to make money go around. It is always more or less disappointing and discouraging to a young wife not to have money enough. Yet everybody practically has that difficulty.

"I think the plaintiff here doesn't appreciate the husband she has.

"In married life we have to give and take and we have to realize we have hardships to overcome. There is nothing in this life that is worth much that doesn't come with some degree of hardship.

"Therefore the judgment will be for the defendant."

Nothing in this case about transportation, we admit, but it is at least a fine philosophy to adopt, a fine program to live up to as we go along over the journey of life, good rules to observe. "If I should arrest all the folks I see making mistakes," said a traffic policeman, a few days ago, "nobody'd ever get anywhere." In married life it is necessary at times not to see anything, to be deaf and blind, and above all to be dumb. And the greatest of all is to be dumb at the right time.

The Wisdom of Majorities

One more thing the railroad trainmen of this country have to learn, and this is that majorities are not always right. Indeed they are very often wrong. It was the majority that stood behind the Spanish Inquisition, supported the burning of witches in our own country, and upheld, time after time, the slavery of negroes. There is no sense in supposing that 51 per cent of a group of men are right. In a meeting of about 200 presidents of great corporations a few years ago the majority voted for a certain course, but they were wrong. No majority of men of any kind, high or low, has a monop-

oly of virtue and wisdom and common sense. Since the beginning of time and history it has always been the minorities that held the key to progress. Many a poor sap votes with the crowd because he fears ostracism for himself and family.

The Editorial of This Edition

ELSEWHERE in this edition we have expressed some concern over the mental attitude of the Rising Generation toward Things As They Are. We have wondered whether these young men and women who are about to take charge are putting a proper value on the wonderful age in which they are privileged to live. This perturbation is due to the fact that students, in most cases, are obliged to study so many subjects in a course that, unless they are particularly interested in it, history is shuffled over quickly, along with other studies, and no background is established.

A rather patient inquiry develops the fact that few men ever touch history again until they have settled down in life, along in the 30s or 40s. If we had our way about it we should like to have all young persons realize clearly, by striking comparison with the past, just what a wonderful place this world is today, and how immeasurably far in advance our own country is in contrast with almost any other —particularly in respect to transportation.

Now, if the class will please come to order: You all remember, of course—yes, you do—that when Washington was appointed to the command of the continental army in revolutionary days it took a dismally long time for him to get on the job. Fisk says, in the first volume of his American Revolution, that "July 2, 1775, after a journey of eleven days General Washington arrived in Boston from Philadelphia."

Eleven days from Philadelphia to Boston! We make the journey now by railroad over night, sleep comfortably while traveling, eat good food, have our suit pressed, read the latest news in newspaper or radiogram, and arrive in the nation's bean capital ready for anything. If we are in a very great hurry we can go by airplane at 150 miles an hour.

After the surrender of Cornwallis, after Lord Howe had gone home to tell George III and Lord North all about how the colonists had taken advantage of him over here on their home grounds, and George, a sorry king he was, had started explaining to the people—you remember all about that, don't you, sure—after the dust had settled, Charles Thompson, secretary of congress, started for Mt. Vernon from New York to notify General Washington of his election to the presidency. It took him seven days, horseback, to cover the 230 miles!

Seven days from New York to Mt. Vernon! The journey now takes five hours by railroad. Senator Moses and his associates, representing the Republican National Committee, traveled 3000 miles in less than four days, last month, from New York to Palo Alto, Cal., to notify Herbert Hoover of his nomination to the presidency, which, Will Rogers tells us indignantly was a waste of time and money because Mr. Hoover already had heard about it in some way.

And that wasn't much of a journey, either. Doubtless the senator and his friends loafed along the road. Art Goebel, who seems to have been in a hurry, flew over the same distance a couple of weeks ago, in less than 19 hours—18 hours 58 minutes from Los Angeles to New York! We are moving along rather rapidly.

But it isn't necessary to go back to Washington's day for sharp and interesting contrasts in transportation. We can find them in our own times. Men still young, at least in their own opinion, remember with smiles the thrill they used to get out of a straw ride on a moonlight winter night. True, it seemed necessary to sit rather close together because of the cold, but this only added to the happiness. Ears and noses and cheeks sometimes were almost frozen but their owners never would admit it, while everyone joined loudly in singing the songs of the day, concluding, of course, with "Good Night, Ladies." In some benighted regions of this fair land these joys may still exist, but not in many.

The old bob-sled and the cutter are seldom seen nowdays, even in the snowy states. Young people only one remove from the farms have no use for straw. A large truck is taken for the ride because, as a group said a few days ago, you can go so much faster, get the ride over with and start something else. If only two or four are going—and two is the preferred number—a closed car is called into service; and the young people simply abhor ordinances forbidding parking more than thirty minutes. Fifty or a hundred miles into the country with something to eat in a roadhouse makes the ideal "hoot" nowdays, "hoot" being the modern jargon meaning to get somewhere in a hurry. And the songs! We shall say little about these; mostly they have to do with sentiments in blue with lachrymose references to mammy and somebody's baby. Nowdays My Bonnie Flies Over the Ocean.

Speed is the thing. A few objects may be shattered here and there and part of the population may be bowled over, permanently in many cases, but this is only because turning out or stopping takes so much time. Indeed the speed-mad world seems more concerned about rapid transit than about life and property. In California alone, in the first six months of the present year nearly 900 persons were killed in or as a result of motor car accidents and thousands were injured. In the period from January 1, 1923 to January 1, 1928—five years—motor

vehicles caused more deaths in the state than six of the most deadly diseases: motor cars, 7666; typhoid, 709; diphtheria, 2198; scarlet fever, 392; measles, 1059; whooping cough, 1317; infantile paralysis, 464; total, 6183.

We must have speed. A going-away party for an actress is given in a 12-passenger air liner, the young women remaining in the air two hours. A society woman in New York forgets she has a dinner engagement within 48 hours in Los Angeles, and in order not to disappoint her hostess flies blithely across the continent and arrives, smiling and happy, with ten or twelve hours to spare before the party. Private planes are common. When this piece was written there were 650 in California alone and nearly 4500 in the nation. Persons with the money for such conveniences are bored stiff in riding at 40 or 50 miles an hour in a motor car for a week-end trip and everywhere are taking to the air where the sky is the limit. Fresh flowers are sent by plane, three times a week, from the Pacific Coast to Chicago at a cost of $650 a trip! Think of the poor saps who buy these flowers!

Long ago, when the Midnight Mail roared past the old farm we used to stir in our sleep and wish we were on it going somewhere in silken state. Now, when the air mail flies over our town house we growl because its motors disturb the family, the family cat and the chickens. Speed is commonplace. Noise everywhere.

Speed is the thought of the month for the national air races at Los Angeles September 8. Flyers from almost every state and from Canada and Mexico, and 400 planes of every description are to be entered. Among cities already enrolled by representation are Pensacola, Fla., San Francisco, Chicago, Richmond, Va., St. Louis, Visalia, Cal., Denver, Colo., Buffalo, N. Y., Gettysburg, Pa., Kansas City, Spokane, Wash., Philadelphia, Detroit, Bradford, Pa., Alexandria, Va., Safford, Ariz., Mexico City, Grimsby, Ont., Toronto, Ont., Windsor, Ont., and Tarrytown, N. Y. The United States navy will participate extensively, and there will be an immense exposition displaying the products of practically every manufacturer of airplanes and aviation equipment, and the toggery, airport equipment and accessories of aviation in every department.

All of which shows, we hope, just what the country is doing in the interest of speedy transportation. Railroad men are keenly interested and are cooperating in every way because several of the great transcontinental lines are soon to have air-rail service between the two coasts in order to meet the demand for speed. Instead of using 63 hours to come from Chicago to Los Angeles by rail, you can travel from New York to Los Angeles, rail and air, in 48 hours. The old order changeth. It is a restless age. No matter where he is every man wants to be somewhere else; and not only the men. The records show, at least on the Pacific Coast, that the air liners carry more women and girls than men.

We think all these things are new, our planes and our dirigibles, but they have been a long time on the way to realization. To emphasize this fact the solemn department of commerce, aeronautics division, sent out not long ago some reading matter for editors. Man, the department says, always wanted to fly. You can find references to this quest in the writings of most of the authors a century or more ago. Erasmus Darwin, who lived between 1731 and 1802, wrote these lines, and with these few words, as the pastor says, we are done:

> Soon shall thy arm, unconquer'd steam! afar
> Drag the slow barge, or drive the rapid car;
> Or on wide-waving wings expanded bear
> The flying chariot through the field of air.

Real Air Rights

An illustration printed recently in this magazine drew attention to the importance of air rights, meaning, of course, the space above a railroad's yards. A letter received a few days ago reminds us that the expression "air rights" has taken on a new meaning in these high speed days. Complaints have been quite numerous, and they are increasing, respecting the trespass committed when aviators fly low over property used for the breeding of chickens. The noise of motors, it seems, has scared the hens to distraction. In regions adjoining airports they are kept so busy scooting under the barn to escape what they believe to be hawks that egg production has fallen off seriously.

Dairymen are particularly distressed over this new and disturbing racket. Certain breeds of cows are extremely nervous, as all well-informed aviators should know. A restive Holstein or a Jersey can be so frightened that nothing can induce it to give down a drop of milk until the udder is about ready to burst. A barking dog is never permitted around such animals. What must be the effect, then, when a tri-motor airplane roars over the field or the milking barn?

But there is still another and much more serious objection to this noise: the social, or shall we say the purely domestic side? The latest complaint in this classification comes from a woman whose name must not be mentioned at present. This woman lives near an airport. She has rather modern ideas about some things. For instance, during pleasant weather she has been in the habit of taking sunbaths a la nature, on the roof of her home. She was protected from the gaze of neighbors but scarcely from a pilot. A plane happened over her home one day as she was sunning herself and hurried back to airport. On each pleasant day thereafter a plane or two would sail overhead, quite by chance of course.

Finally, when it seemed that all air travel had been

diverted to a new route directly above her home the sunbathing mother was compelled to change her ways. Thus, it seems, the march of progress hinders while it helps. Is it possible that air rights as now defined are to be ignored? A shortage of eggs and milk is bad enough, but to cut out the sun-baths is asking a little too much.

Why We Have Fool Laws

In the recent session of congress 23,832 legislative proposals were introduced in both houses. Only 1422 were passed and of these 615 were private bills, pensions, claims and resolutions. So the situation is not really so bad as it might at first glance be feared. Of course a very large number of the 23,832 bills were introduced by request; congressmen could not refuse, and a large number were what are called "jackass bills," and never got out of committees to which they were referred.

Obviously, congressmen can not read all the bills they are required to vote upon. They are compelled to vote as the committees recommend. There are 80 of these committees, 46 in the house and 34 in the senate. As might be expected the committees frequently kill a good bill and just as certainly they let some get by to a vote which never should have seen the light. When one remembers that 48 state legislatures, most of them meeting every two years, have many thousands of bills to consider there is little reason to wonder why so many fool laws get into the statutes.

Psychology in Railroading

The man who mentioned psychology, a few years ago, as having any possible connection with railroading would have been lucky to get out of the yard in good order. Indeed, we suspect the subject might still be rather dangerous among a very large number of operating officials. Those who listened respectfully and intelligently would form a small audience, but they would be men who realized, as a few farmers have done, that science has a way of discovering things far too deep for the average person.

Some extremely interesting psychological tests for bus drivers were described in our last issue. For the receptive mind these tests prove a number of very important things, but more than all else they prove that the country's dumbbells will have to readjust their thinking apparatus. They show, for one thing, that no two or three men react in the same way to certain definite influences. One man with his mind on his job sees danger and acts instantly to avoid it while another, apparently of equal intelligence, stumbles into it, kills himself or someone else, and comes out, if at all, with the rubber-stamp excuse that he "didn't think." The world is very hard up today for men who do think, think quickly and think right—or rightly if you prefer that form.

The officials of the Boston Elevated Railway Co., have been converted to psychology in a most astonishing way. Up to two years ago these officials were busy keeping records of accidents. About that time they employed a noted industrial psychologist, Dr. Charles S. Slocombe, to see what was the trouble. In order to keep from being attacked Dr. Slocombe went among the men as an ordinary individual. He used no title. He was careful, for his own sake, to make no mention of psychology. After a thorough investigation he reported to the company. His recommendations were adopted. The reduction in the number of accidents was remarkable. The result is new in transportation, but rather old in other departments of industry. All over the country psychology has had a very important part in business for quite a number of years. It is a subject well worth the attention of every railroad executive. We know pretty definitely that there are more accidents on certain days and between certain hours of the day than at other times. Why? The psychologist, called by any other name, can tell you the answer.

When Is Middle Age?

On his sixty-fifth birthday anniversary, recently, Henry Ford said that men over 50 run the world and that without their experience and judgment the youngsters would be lost. He might have set the figure higher. With the average longevity of mankind increasing by leaps and bounds until we still consider a man at the height of his powers at three score years and ten, it is inevitable that those whom another generation might have considered "old men" should still be at the head of affairs.

It is only necessary to glance at such a list as that contained in the World Almanac to realize that men over 70, let alone 50 or 65, are still holding important posts in public life and business. And the revelation of the ages of some of these men is startling, to say the least.

Hugh Walpole, the English writer, said not long ago that when he was a young man, say, about 22, men of 40 seemed to him to be so old that the only thing for them to do was to retire from active life and get ready for the next world. Indeed, at that time Walpole wrote a novel called "Maradick at Forty," the point of which was that 40 marked the close of life. Incredible as this seems, there are many young men of 20 right now who think in just that way.

"My difficulty, now that I am 43," said Walpole, "is to know when middle age begins. I am certainly more active now than I was at 22, more active both physically and mentally; I am stouter in figure than I was at 22, but not so stout as I was at 35. I do not feel now, as I did then, that some catastrophe is waiting round the corner to leap upon me at any moment and spoil all my cherished plans. It will be seen that I was a morbid young man."

Ladder's Top for Paul Shoup

Sproule Retires January 1

By W. J. Parker

Hale Holden

NEW YEAR'S day is going to have a significance this winter for the heads of the Southern Pacific Company that it never has had in the past. It will be a day of retirement, promotion, old faces in new places. For some the day will mean picking up burdens others have been bearing for years, and for at least one important official the season will mean a real rest, long anticipated.

December 31 William Sproule, president, will retire after 41 years' service. The official statement is the customary crisp announcement. It says:

"The board of directors of the Southern Pacific Co. announces the following changes in the organization and management of the company's affairs, effective Jan. 1, 1929:

"William W. De Forrest, now chairman of the executive committee, will retire from that position, and become chairman of the board of directors, a newly created position.

"Mr. De Forrest will have the management of the company's general financial affairs and consolidation matters.

"Hale Holden, for many years president and chairman of the Chicago, Burlington & Quincy,

Paul Shoup

will have general control of the company's business.

"A. D. McDonald, now vice president of this company and president of the Texas & New Orleans Railroad Co. (Southern Pacific lines in Texas and Louisiana), will continue in those positions and in addition will have general control of the management of the Southern Pacific's steamship lines.

"Mr. McDonald will maintain headquarters both in New York and Houston.

"William Sproule, president, after more than 41 years service with the Southern Pacific's lines,

William Sproule

will on Dec. 31, 1928, retire from active service under the pension rules of the company and in accordance with his expressed wish, Paul Shoup, executive vice president, will become president.

"Mr. Shoup will have headquarters in San Francisco."

Mr. Sproule later issued the following separate statement regarding the appointment of Mr. Shoup as president:

"The fitness of Mr. Shoup to succeed me as president of the Southern Pacific Co., will be quickly recognized due to his widespread knowledge of the Pacific Coast and its people. In fact, it should be sufficient assurance that the policies of the Southern Pacific, so effective in the development of the West, will be continued."

William Sproule entered the service of the Southern Pacific Co. as a freight clerk in 1882. Within five years he was appointed assistant general freight

Engineer's Drawing of Bridge the Southern Pacific Is to Build Across Suisun Bay to Take the Place of the Old Ferry Which Has Been Carrying Trains From Porta Costa to Benicia Since 1879. The Bridge Will Be About Six Miles Long.

agent at San Francisco, and was then known as the youngest official in the service. He became general freight agent in 1897 and a year later general traffic manager. In this capacity he served the company until 1906 when, after normal conditions were resumed following the San Francisco fire, he went to the American Smelting & Refining Co. and its affiliated interests as traffic manager, director and member of the executive committee in New York.

In 1910 Mr. Sproule was called to the presidency of Wells Fargo & Co. but resigned in the latter part of the next year, to become a director and president of the Southern Pacific which office he has since held without interruption, except for a year and a half when he was regional director in the war period.

During the early days of the World War he was appointed chairman of the western department of the Railroad War Board as of April 1, 1917. From July 1, 1918, to January 1, 1920, he was regional director for the central western region of the U. S. Railroad Administration.

Mr. Sproule has played golf, but prefers the stimulant of walking as the exercise that has kept him, with little exception, in excellent physical trim. He has served in public capacities, is now a director of the Federal Reserve Bank of the twelfth federal reserve district, a member of the San Francisco park commission, a trustee of the Park Museum and the Palace of the Legion of Honor, and is a supporter of the San Francisco Symphony Orchestra. He has served as president of the Bohemian club and later as president of the Pacific Union club, both leading organizations in San Francisco.

Hale Holden, the new face in the S. P. family, was born in Kansas City, Mo., August 11, 1869. After graduation at Williams College in 1890, he took the course at Harvard Law School, and immediately upon finishing started in the practice of law. In 1907 he became general attorney for the Burlington. From that date his advancement was rapid and included such posts as assistant to the president, vice president, and the presidency of the company, which he assumed in 1914. Mr. Holden was a regional director during the World War from 1918 to 1920 when he resumed the presidency of the Burlington.

The rise of Paul Shoup to the presidency of the Southern Pacific is the logical climax to a most interesting career. In a biographical sketch published in this magazine more than a year ago it was said that while Mr. Shoup's life story was interesting it really wasn't greatly different from hundreds of men in railroading. He had all the usual jobs at one time or another — including that of telegraph operator — jobs everyone has a chance to try; but Paul Shoup got results of the right kind where others hurt their eyes watching the clock.

For several years Mr. Shoup has been dreadfully overloaded with duties and responsibilities. It is believed that when he becomes president of the S. P. January 1 some of these goat feathers may be discarded.

Good On Time Record

A check of 35,000 cars of l. c. l. merchandise on the New York Central destined to local points maintained an average of 96 per cent arrival on time in May. Through constant supervision the company is striving for 100 per cent.

He who would be rich has not to pile up money, but to diminish his wants.—Gonsalvo de Cordova.

Here's the Motor Coach Sleeper

Pullman Comforts Condensed

By J. W. Potter

Berths Made Up in the New NiteCoach, and Everything Ready for a Long Night's Sleep.

ONE OF the strangest exhibits at the Pacific Southwest Exposition at Long Beach, Cal., this fall, is the NiteCoach, its name spelled as shown despite the criticism of philological experts. This peculiar vehicle, designed and built in the huge shops of the Pickwick Stages System at Los Angeles, offers rather comfortable if somewhat condensed sleeping quarters for 26 persons, with complete dining service, lavatory and other refinements. The condensation, it must be admitted, is a trifle more pronounced than anything the Pullman family has attempted, but once you are in bed you have as much space as any reasonable human being requires.

The new car resembles nothing on or under earth, on the waters or in the sky. Streamlined from prow to stern, for beauty and swiftness, with rows of portholes and big plate glass windows, it has been likened to a blue-and-grey submarine on soft rolling balloon tires. Strangest of all is the manner in which ample berth room for so many passengers is allowed in a car no larger than other Pickwick motor stages. The secret lies in an ingenious plan of interlocking compartments, arranged on two decks, each seating or offering sleeping quarters for two adults.

Each little stateroom has an adjoining dressing space with ample standing-room, curtained off from the rest of the car. In every compartment are wash basin with running water and a thermos jug of ice water—refinements not found in other types of sleepers. The deep chair cushions are utilized to form comfortable berths at night, made up with mattresses and snowy linen by an attentive steward. Efficient heating and ventilation are provided by a fan-controlled system. This is the official, technical description: Length, 34 ft. 6 in. Width, 8 ft. Height, 10 ft. 3 in. Cost, about $30,000.

All metal body, integral with chassis, constructed chiefly of Duralium, a costly metal, light as aluminum, strong as steel. Sturdy and safe. All-Pickwick motor can be replaced in a few minutes by simply sliding it out on rollers and bolting in another power plant.

Sleeping room for 26 persons, in 13 compartments, each with baggage space, extra seat for dress-

The New NiteCoach Certainly Is a Novelty in Design, Anyway. Nothing Quite Like It Except in Dreams.

ing, thermos jug, wash basin, mirror, pull-down and drape curtains. Compartments arranged on two decks, with central aisle, 7 ft. high.

Kitchen at front of car. Hot meals prepared and served a-la-carte.

Lavatory with wash stand, flushing toilet, large mirror. All waste is contained in sealed chemical tanks.

Crew of three—driver (in elevated separate compartment), steward and porter.

NiteCoach designed and built entirely in Pickwick shops, by Pickwick engineers, for use at an early date on Pickwick West Coast and transcontinental lines.

Motor bus service in England entered a new era August 14 when the first sleeping coach left London. The Albatross Roadways, Ltd., the concern operating a new type of motor transport, announced that the buses with the new accommodation for business men will leave London at 11 p.m. and will reach Liverpool in about eight hours.

The giant motor buses are divided into small compartments which contain four berths.

This Law Should Be Revived

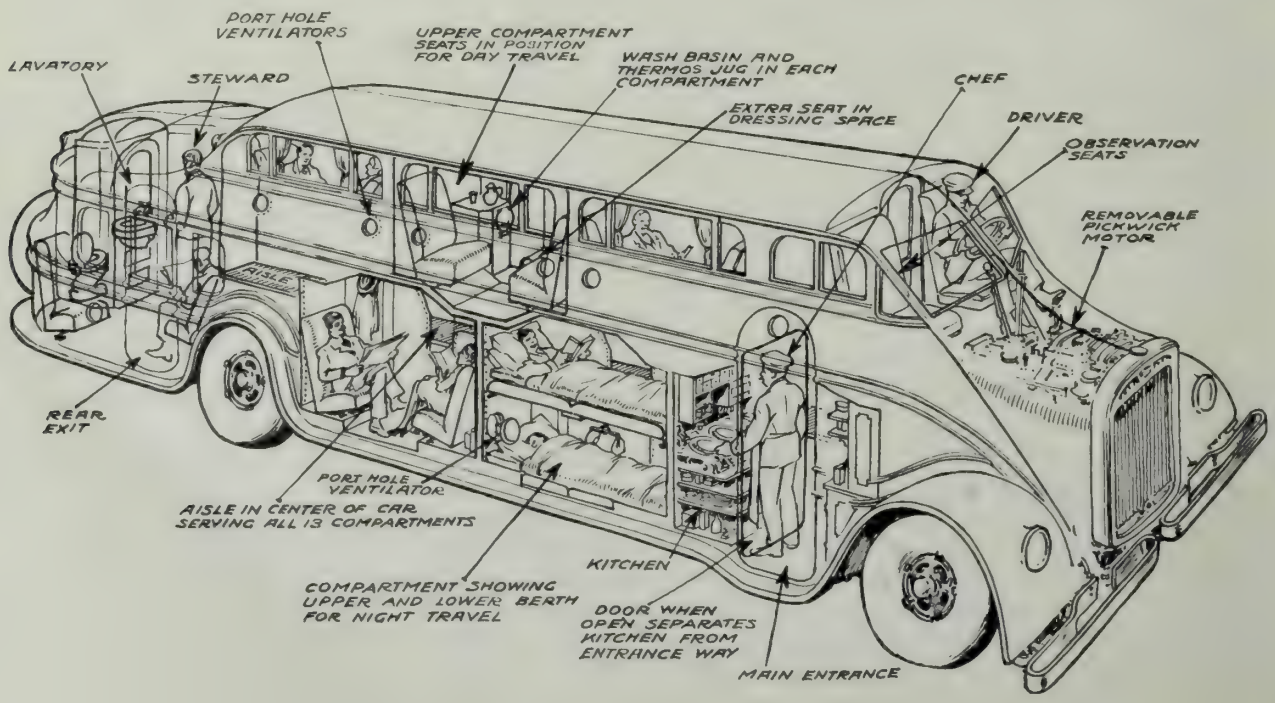
A law in Iowa required that persons driving automobiles should telephone ahead to each village or city giving warning of intended arrival before beginning the journey. This law, although it had been for a long time disregarded, was taken off the statute books only two years ago.

Quick Work on the P.R.R.

Employes of the Monongahela division of the Pennsylvania Railroad believe they have made a record for the system at Shire Oaks hump by weighing and putting over the scales in an eight-hour period more cars than have ever been put over a similar set of scales on the system.

The scale crew which established this record works from 7:31 a.m. to 3:31 p.m. On July 3 they completed their tour of duty at 3:21 p.m., or in 7 hours, 50 minutes. At the completion of this day's work they had put a total of 831 cars over the scales, of which there were 778 weigh cars and 53 no weighs. This was done without personal injury, damage or loss to equipment, or overtime. The freight weighed was composed of twenty-eight classifications and run in on fourteen tracks in classification yard.

This wonderful record was made possible only by the co-operation and team work between



Assistant Train Master T. J. Martin and his men. Martin was on the job from start to finish, and the heart of every man on the job was set on making the record. The number of men used to do this work was 19 car riders, one train crew, conductor and two brakemen, two engine crews and one switchman, one assistant yard master and the usual scale force. All car riders had to return to their scale hump on foot, no facilities such as motor cars or locomotives being used to haul them back. Switchtender Joseph Molen was at the switches and disposed of the 831 cars without getting a car in a wrong classification, handling 15 switches throughout the day.

An automobile 125 feet long, 25 feet wide and 45 feet high and with wheels 40 feet in diameter has been designed by a German engineer for desert travel.

It is intended to accommodate 150 passengers and 200 tons of cargo.

How About This, Mr. Whitney?

Rock Island Caboose 18058, famous throughout the Middle West as the traveling "Get the Business" office of Conductor J. P. Bullard of Eldon, Mo., was on exhibition at the Missouri state fair at Sedalia, Mo., last month. Conductor Bullard, who has gained wide reputation as a "Business Getter" for his railroad, was in charge of the caboose. The car contained an interesting collection, including a running model of a Golden State Limited locomotive, which has been seen by thousands in several of the larger cities of the country.

Conductor Bullard heads a voluntary organization of 143 Rock Island conductors and brakemen, whose slogan is, "We believe in our railroad and in its officers and employes." Their way of demonstrating this is by helping to render the kind of service which keeps the friendship of the patrons. Conductor Bullard's traveling office is a model of business efficiency and has been pictured in the Sunday feature sections of the metropolitan newspapers.

Ordinarily, Y'understand, the Shades are Drawn When Folks Are in Bed. This Picture is Merely for Illustrative Purposes.

He Didn't Think

Too many envelopes in the pocket of a representative of the Browning Locomotive Crane Co. not long ago cost that concern the opportunity of competing in the bidding for a locomotive crane for the Passaic, N. J. valley sewerage commission. Eight concerns, including the Browning company submitted envelopes to the commission at its meeting. When the bids were about half opened, the Browning representative discovered he had submitted an envelope containing correspondence instead of the one containing the bid. He asked permission to substitute but Commissioner Auerbacher objected, declaring that a definite time for the submission of bids had been fixed, and if the representative erred it was to be regretted, but his request could not be granted.

One Family Comprises Crew

John Mead, a conductor, and his five sons, all in the employ of the Great Western Railway in Wales, comprise the crew of one of its crack trains. Two of the boys are engineman and fireman, respectively, while the other three complete the crew.

Bus Builders Are Busy Down East

New Jersey Expansion Plans

By Charles S. Zack

New Bus Department in the Newark Shops of the Public Service Coordinated Transport.

THEY are doing things down in New Jersey in bus transportation that ought to be studied by similar interests everywhere. For one thing, the Public Service Coordinated Transport at Newark is planning the expansion of its interstate bus service, which under the name of Public Service Interstate Transportation Co. started operating last March and has 70 buses running to New York and Pennsylvania. This expansion will be made possible, Edward A. Tuson, the general auditor says, by the recent approval of the corporation's application to the public utility commission to issue $500,000 worth of common stock.

Work of building new bodies for 331 new gas-electric chassis being built for the company, is going on at full speed in the company's Newark shops. While the majority of these new buses are planned for expansion of bus lines in New Jersey a large number will be available for interstate transportation.

The Newark shops were built primarily for construction of trolley car bodies. When the buses came into operation the experience of the workers in building trolley cars stood the corporation in good stead, and a design was adopted that has proved so successful in operation as regards sturdiness and ease of repair that with few modifications from year to year, 58 bodies were built in 1924; 189 in 1926, and 65 in 1927. At present 331 bodies are under construction.

The personnel of the shops is so organized, H. A. Benedict, mechanical engineer in charge of construction says it can readily be changed when necessary from a purely maintenance program to one of manufacturing as well. In 1927, with no interruption in the regular overhauling of cars and buses, 10 trolley snow sweepers and 65 buses were built. February 7 last 50 bus bodies were started and completed before the close of the month. In March the production figures reached 98 and in April 101.

The bus expansion in New Jersey has been rapid since Public Service entered the field in 1924. Trolley lines have been abandoned for bus service. The corporation has taken over and improved numerous bus lines in various parts of the state. Of the more than 10,000 buses operated in New Jersey in 1927 it is estimated that Public Service owns three-fourths, and is rapidly acquiring and establishing new lines, especially in sections where cost of trolley operation shows that buses are more economical.

The corporation scraps most of the equipment it buys from independent concerns but rebuilds buses in fair condition and puts back into service. Where motors are found in good condition, the bus is sent to the Newark shops for a new body. Mechanical En-

been machining the aluminum castings used for the cowl, front floor boards, rear axle cover, license plate pocket, and preparing the aluminum side panels and moulding. The pipe department and welders have cut, bent and welded the steel tubing used for gates, grabhandles, roof grab rails, and farebox stands. The radiator and fender department has formed the rear fenders from No. 14 gauge sheet steel, and the blacksmiths have been shaping the rafter inforcements and other steel parts. While the body is still in process of erection the electricians install the interior wiring circuits using wire which previously has been cut to size and made up into cables, with terminals soldered, ready for installation.

"The two men erect the body in from three to 3½ days. The body is then rolled into the paint shop, each track of which holds 13 bodies. Here, while the outside of the body is being primed and surfaced, other gangs install

Building the Car Bodies in the Bus Department of the Newark Shops.

In the Painting Department of the Newark Shops.

gineer Benedict explains his construction system in this way:

"The body construction begins in the carpenter shop with the erection, in a huge form, of the bus floor, consisting of the side and end sills, the cross members and floor boards, all material having been previously turned out by the mill, ready for assembling. The completed floor is then laid on a temporary truck made of timbers fastened to two pairs of trolley car wheels and axles. Two men are engaged solely in assembling these floors. The completed floor on its temporary truck is then rolled to the assembly tracks where the necessary posts, rails, and rafters are laid out ready for erection.

"Two men then assemble the body, erecting the posts, installing the side rails, front hood bow, roof and roof covering, side panels, ventilators and front cowl casting.

"While this is being done, the mechanics in the machine shops and controller department have

Truck and Bus Repair Department of the Public Service Coordinated Transport at Newark.

the headlining and lay the composition floor covering. Other gangs go from bus to bus, each installing one particular unit such as the driver's partition or the entrance door. Each day the body is rolled one step nearer the south doors, so that by the time the end of the line is reached the bus has been painted inside and out, the seats, sash, gate, farebox stand, dome lights, controllers, and other electrical equipment, buzzer moulding and windshield have been installed. The completed body is then towed by an electric locomotive to the storage sheds to await the arrival of the chassis. Practically all the construction and painting is done on a piece work system.

"When the chassis arrives it is taken to the motor shop and rolled under a body which has been brought from the sheds, raised by electric hoist and the temporary trucks removed. The pitcrew then lower the body and fasten it to the chassis. Gas, oil and air lines are hooked up, the motor and generator leads on the chassis are connected to the body wiring, the rear bumper, hood and license plates are attached, and the completed bus is driven out under its own power to the bus shop. Here a final inspection, tuning up, and a road test complete the work. The bus is now ready to take its place on the road with the hundreds of others making up the Coordinated Service bus fleet."

Saved By Radio

You have all heard of the man who passed safely, unwounded, through the entire World War, serving in nine engagements, and then killed himself accidentally with a .22. Here's another one: W. F. Scott, aviation chief machinist in the navy, seeking to break the world's parachute jumping record, a few days ago, dropped 15,000 feet, landed on the roof of an apartment house, and then mighty near fell off the roof to his death. Scott struck the roof gently enough, but the wind carried him along, or dragged him until his feet caught in a radio aerial. The parachute collapsed and fortunately caught on the ledge as Scott fell over the side of the building, and was left dangling in the air. The police rescued him with a ladder.

Where the Money Goes

Per mile of track the roads earned $20,000 from freight traffic, $4,400 from passengers and $1,000 from mail and express. This totals $25,400 per mile. Thus the average taxes per mile, namely $2,431, for the sixteen states mentioned were equivalent to 10 per cent of the mile earnings from all railway sources. The New Jersey and District of Columbia taxes averaged $6,340 a mile.

In 1926 the total tax levies, state and federal, amounted to $388,922,856, more than the total cost of maintaining the rights-of-way in either the eastern or western districts; as much as the cost of maintaining the rights-of-way and the rolling stock as well in the entire southern district, and within $46,000,000 of the cost of maintaining rolling stock in the western district.—A. M. McDermott, in "The Bankers' Magazine."

A new corporation is to offer an 80-minute airplane trip from Philadelphia City Hall to New York financial district. The terminal at Philadelphia will be Petty's Island in the Delaware River and in New York at an undisclosed site near the Hudson Tubes.

The recipe for perpetual ignorance is: Be satisfied with your opinions and content with your knowledge.—Elbert Hubbard.

Little Stories About Big Men

J. J. Bernet, President of the Erie Railroad.

IT ISN'T easy to write about John Bernet and leave out the Van Sweringen brothers. The two are as inseparable as St. Louis and the Mississippi or New York and Fifth Avenue. But this isn't a story about the Van Sweringen brothers; it is enough to say that when these enterprising young real estators with big dreams of their future hustled together enough money to make the first payment on the Nickel Plate Railroad, then regarded as the joke of transportation circles—523 miles long—they looked eagerly about for a man competent to run it, and just one man stuck in their minds, John J. Bernet.

At that time Mr. Bernet was a vice president of the New York Central, and his friends believed him slated for a very much higher place. Naturally, as friends will do when you act without consulting them, John Bernet's friends expressed the opinion quite publicly that something was wrong with him; he couldn't be just right; and they had no very much better opinion of the Van Sweringens. For one thing, these gentlemen had obligated themselves to pay $650,000 a year for ten years to pay for the road, and no one believed the property ever could earn such a sum. It had never paid a dividend, the friends reminded those who listened, overlooking the fact that the Nickel Plate was not very greatly different in that respect from many other lines. It was called the New York, Chicago & St. Louis, but it hadn't gone where it was supposed to be headed. It started from Chicago all right but it ended at Buffalo and never did get near New York or St. Louis.

So, without a word about salary and without a contract, Mr. Bernet began with the poor old Nickel Plate. In four years the name might properly have been changed to Gold Plate for the new head made it pay real money.

In 1916, the road's operating revenue was $23,969 a mile; by 1920 Bernet had raised it to $44,867 a mile. When he took the road its average revenue trainload was 355 tons; in four years he had increased this to 771 tons. Its earnings per freight mile in 1915 were $1.82; in 1919 they were $6.32, and to go higher. And while traffic expenses were $1,075

per mile in 1915, they were down to $604 per mile in 1919; while gross income increased more than 100 per cent, a rise of only 25 per cent in operating expenses took care of the new business.

While he was about it Mr. Bernet rebuilt the road, double-tracked much of it, bought a lot of new equipment, put up new stations and freight houses, and paid the $650,000 a year to the New York Central. Also he paid dividends of 11 per cent on the common stock—stock which had gone from $35 a share to more than $200. Bernet was the son of a blacksmith. When he began anything he forged ahead, hammer and tongs.

After a while, in order to get his share of western business, Mr. Bernet and his associates took over the Toledo, St. Louis & Western, then just out of receivership, and so hitched up the line with St. Louis, the original destination. Within three years they also owned the Lake Erie & Western and so got into Peoria, and the whole outfit fell under the management of John Bernet.

This didn't satisfy the blacksmith's son. The Van Sweringens bought the Chesapeake & Ohio so they could get steam coal for the industries along the Nickel Plate. From then on it was just one thing after another, the Pere Marquette and the Erie, and now, if only someone can induce the powers at Washington to consent to it, there is likely to be another great eastern railroad system ranking pretty near the top with any of the big boys.

It is a difficult thing to get John Bernet to talk, now that he is president of the Erie and has enough to make any man think forty ways for Sunday about everything except magazine stories. Goodness knows he never lacks willingness to converse when the subject is railroading—his particular road and its job. It is still more difficult to find him in his office. Five days out of seven he is out on the line and saying things here and there about this and that for the betterment of the Erie. The story is told that shortly after he took charge of that road he called about 200 traffic men together. No one was very much worked up about the matter. Doubtless they would hear the usual president's speech, sales stuff, loyalty, and the rest of it.

The traffic hounds got a shock

Mr. Bernet Chats With An Engineer.

that day. When Mr. Bernet rose to speak he did it rather suddenly, as if he had a number of places to go and wanted to get started. His gray hair was a bit mussy. It usually is. And this was his speech:

"I want ten million dollars in new business on this railroad by the end of the year," he said. "It's up to you fellows to get it! And I don't want any alibis!"

When railroad executives want a thing done quickly, properly and efficiently, and say so without first distributing violets and serving tea and pink sandwiches, they are called Hard-Boiled. John Bernet isn't hard-boiled. He just wants things done and done right, and moreover he knows when they aren't done that way, and someone hears about it without any preliminary whereases and beitresolveds. You can hear all the old typical railroad stories about him that are told about half the good operating men all over the land; about how he cleared out the congestion one day after everyone else had failed, how he cleared the line after a bad wreck hours before the president believed it could be done. Bernet has done these things and done them right. He doesn't know any other way, and he has no use for men who do them any other way. If this is being hard-boiled then John Bernet is the original five-minute egg. He is a real—indeed, he is an ideal operating man, and these are the only ones who move traffic, move it right, and get results. He believes in using only the best tools to get a job handled right, and he proved it when he went to the Erie. One of his first moves in the interest of economy was to spend more than 27 million dollars in one year—1927.

The Erie had 1300 locomotives, representing 83 different types that required 83 kinds of repairs. At a stroke Bernet scrapped 400 of them, ordered 115 others rebuilt, and replaced those discarded with the best locomotives he could buy. The savings in repair costs alone are estimated at $3,100,000 a year.

He believes in men, the right kind, and he won't have any others. He could have ruined the whole Erie organization when he went there to effect changes. But not a superintendent was fired. About the only changes made were promotions. He likes men and men like him.

Here we have to pull out the trusty old rubber stamp. Mr. Bernet started his railroad career on the Michigan Southern as a telegraph operator in 1889. Since those days he has been through the ropes properly, operator, train dispatcher, chief dispatcher, trainmaster, assistant superintendent, division superintendent, assistant general superintendent, general superintendent, a step at a time. He knows his business, and when you say this and mean it, it tells the whole story.

This One Is From A Farm

When you begin to size up the successful captains of industry who started on farms—and got away as soon as they could—you cease to wonder why agriculture is gasping for relief. Consider the case of Walter P. Chrysler. An eastern paper recently laid itself open to suit for libel by referring to his birthplace as "the western Kansas frontier town of Wamego."

This is pretty bad, but another New York paper quotes Mr. Chrysler himself as saying he was born in Wamego, "near Ellis," and this is the final geographical blow certain to floor the folk back home when they read it. Someone, certainly, is sadly balled up about the state of Kansas, Wamego being in Pottawatomie county, northeast Kansas, and Ellis on the western edge of the county of the same name, six counties west, in the north central part. All of which reminds us of the teacher in a New York high school, Jewish, who told the students that Topeka was a mining town near Kansas City, and came mighty near personal injury from a little gentile girl who had lived in the Kansas capital and loved it. For the average New Yorker the sun sets in Hoboken.

Well, anyway, Walter was born in Wamego, which is proud of the fact, 53 years ago. Of course, the town has improved a lot since then. His interest in transportation is natural, hereditary. His grandfather drove a covered wagon across the plains in the early days, and his father was an engineer on one of the old wood-burners on the Union Pacific. He went to school until he was 17, as most of the boys did, took summer jobs when he could get them, sometimes in the grocery store, and went to work for himself in earnest right after he quit high school. There is more conflict among newspaper historians at this point. One says he began at ten cents an hour while another cut it down to five, but whatever he did get he worked for it in the Union Pacific shops at Ellis, and it took him several hours of fast riding to get there.

For four years he stuck to the job. Then, one day, in a period of heavy traffic, a locomotive came in with a broken cylinder head. A mail train was due to leave in two hours, and there wasn't another engine to be had. No one, the superintendent of motive power, Mr. Hickey, included, believed repairs could be made in such a short time. Walter said he could do it, and he did, and the engine was ready when it was needed. Hickey said he wouldn't forget it, although he couldn't allow him any extra pay for the work. Three months later young Chrysler became general foreman of the Colorado & Southern shops at Trinidad, Colo. He made good there, as he always has done. In nine years he was superintendent of motive power for the Chicago Great Western Ry. "I was getting a pretty good salary," he said in telling the story, "but by this time I was 33, and I realized I had gone as far as I could in the line I was in. Mechanical men never got further than being the heads of their own departments. Executive positions were not given to them. Tradition prevented my promotion, but it did not prevent my taking another job.

Walter P. Chrysler.

"And that is something I have never hesitated to do all my life. When I have seen that I have gone as far as possible in one direction, I have been willing to take a chance in an entirely new field, even when doing so meant an actual pecuniary loss for the time being.

"So, at a salary of about half of what I had been getting I went to work for the American Locomotive Company in the position of works manager. I saw possibilities there for future advancement. My job meant more than the actual construction of locomotives—the element of competitive sales entered. In two years I was general manager and the company was operating at a profit.

"From what I am telling you I don't want you to get the idea that I object to punching a time card. As a matter of fact, at the office entrance of the Chrysler Company in Detroit, card number one has my name on it and every morning I am in that city that card is punched at 8 o'clock. But what I am trying to drive at is that I was interested not only in the construction details of engineering, but also in the purely business side of it."

The automobile industry began to grow rapidly in these years and

men of ability were needed to direct plant operations. Charles W. Nash, then head of the Buick division of the newly organized General Motors Corporation, asked Mr. Chrysler in 1911 to take charge of the Buick factory at Flint, Mich. In a few years he became president of Buick, and later was made vice president in charge of production for General Motors. In this capacity he continued until the end of 1919, when he resigned.

After three months he was induced to join Willys-Overland. The late James C. Brady invited him to assist in the reorganization of the Maxwell Motor Company. Mr. Brady and Mr. Chrysler later not only became closely associated in business but were also the warmest of friends.

The summer of 1921 saw the old Maxwell Company reorganized as the Maxwell Motor Corporation. A new small car, with the speed, power and refinements that were commonly associated with high priced cars up to that time, was named after Mr. Chrysler and placed on the market early in 1924. Nineteen years of transportation experience were put into this product by Mr. Chrysler, and the acclaim with which the new car was greeted was ample repayment for his labors.

Thereafter the organization expanded with amazing speed. The Maxwell name was dropped and the company was again reorganized and called the Chrysler Motor Corporation.

Not long ago the industrial world was stirred by the merger of the Chrysler Corporation and Dodge Brothers, Inc., in which Mr. Chrysler took a leading part. Look at the man's picture. Clear-eyed, straight, keen, watchful. Why should any New York paper be permitted to refer to his birthplace as a frontier town? He has a lot of mighty interesting ideas about speed and other things, too.

"More haste," said he, "may be less speed according to philosophical calculation (that doesn't sound a bit like Wamego), but it is all the speed there is in matters of motion. And by speed I don't mean breakneck travel for the sake of a thrill. I mean quickness in getting somewhere to do something useful quickly. That is the pitch to which our American civilization is keyed. We are in the rapid transit era, and those out of step become stragglers.

"American life is built on speed. We turn out, at a rate never even dreamed of a few years ago, high grade tool steel which is sold at a price never thought to be possible, and this illustration can be repeated in every department of industry. The best way to express the supremacy of speed in our civilization is as a synonym for service."

When Mr. Chrysler entered the automobile business it was considered satisfactory to turn out 30 or 40 cars a day for a limited rush period of about three months in a year. Now, he says, plants produce 500 or 700 a day, and some of the cheaper cars come out in greater numbers.

Mr. Chrysler believes the large cities are completely out of date with their networks of trolley tracks and fleets of street cars. In New York, he says, Boston, Chicago, Philadelphia, St. Louis, Cleveland, Detroit, Los Angeles, San Francisco and a dozen others it is, he declares, a criminal waste to tolerate these conditions. "Unsightly, clumsy and dangerous elevated railroads," says he, "are, or should be a thing of the past. The air space they occupy could be used more efficiently for express motor routes. The cities will be obliged soon to build double or triple deck motor roads for several classes of traffic."

When a new man is employed in the Chrysler plant, the head of it says, he wants to see him personally and talk to him. "The first question I ask him," says Mr. Chrysler, "is 'Have you a girl?' I can't define psychological symptoms but I know that the way a youngster reacts to that question is an index to what I want to know about his character."

Which shows that with all his speed this product of the frontier town of Wamego has a lot of sentiment in his make-up. But of course you couldn't be born in Kansas and be without it.

We'll Bite, What's Your Score?

H. A. Scandrett, president of the Chicago, Milwaukee, St. Paul & Pacific Railway, suggests a novel method for determining whether a man is giving enough of his time and energy to his work. Says Mr. Scandrett: "If you play golf with a score of more than 90, you are neglecting your golf. On the other hand, if your score is under 90, you are neglecting your business. I hope the directors of the Milwaukee road will judge my work by my golf score."

The Compensations of Age

The late Chauncey M. Depew was fond of telling stories on himself. On one of his last birthdays, which had become occasions of ceremony, he told this one:

"I feel as Methuselah must have felt when one of the beauties of his court congratulated him on his 960th birthday, saying, 'You don't look a day over 930.' "

This also on himself:

"One day I was stopped in the street by a lady who asked if her aged father might come in and visit me. 'He is nearly as old as you,' she said. 'He is feeble-minded, but I know he would enjoy talking to you.' "

But In Rainy Weather

The Kansas City Southern has discontinued daily passenger service to towns between Kansas City and Pittsburgh, Kansas, 128 miles. Communities served lie between two partly paved highways and have no all-weather road system that would make relief possible from bus lines.

Seven Comfortable Cars for Workmen

A Pile Driver Outfit

By M. A. Hall

Supt. Machy. K. C. S. Ry., Pittsburg, Kan.

A WORK train of seven cars built with unusual facilities, conveniences and comforts for employes has just been turned out by the Kansas City Southern Ry., in conformity with that company's determination to improve working conditions for its men, and at the same time to realize the most favorable results with facilities provided. The train consists of a foreman's car, combination kitchen and dining car, recreation car, bunk car, tool and material car, supply car, and piling car, and the cars are run in the order given. Rough plans for the interior of the cars were originated by the maintenance of way engineering department.

The cars were built over steel underframes salvaged from foreign line cars, burned or wrecked while on our rails and still in reworkable condition. The superstructures are carried out along conventional lines of wood car construction with the necessary modifications in the framing to provide openings for doors and windows and the necessary facilities for securing the interior lining.

Wood side and end sills and the necessary nailers were laid on and secured to the steel underframes as a foundation for the superstructure. The sides and ends of the cars are covered with standard 3½ in. siding with one layer of two-ply tarred felt underneath. The roof construction consists of the regular form of wood car lines and purlins supplemented with additional joists spanning the top plates and secured thereto. The bottoms of these joists are in alignment with the bottoms of the car lines and provide means for securing the ceiling and staying the top of the interior partitions.

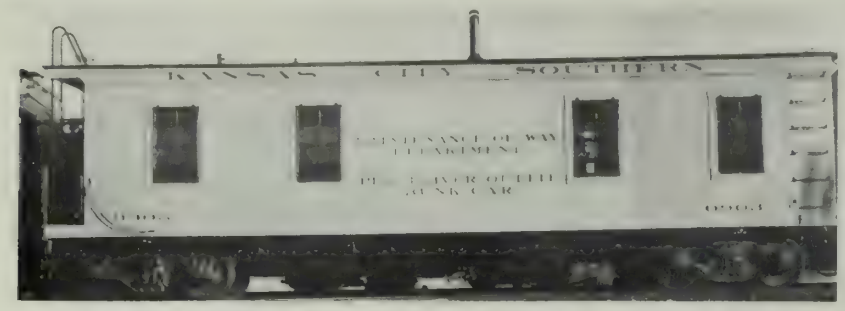
The roofing is composed of two courses of 5¼ standard T & G roofing, both courses laid laterally with one thickness of two-ply tarred belt between. The sub-floor is composed of standard 1¾ in. decking laid laterally with a top floor of 3½ in. T & G yellow pine laid lengthwise of the car, one thickness of two-ply tarred felt being laid between.

The trucks are all of steel and were built up from parts salvaged from wrecked or dismantled cars. Cars are equipped with Westinghouse 8 in. power brakes with k-1 tripples, dirt collectors, retaining valves, etc. and, like the hand-brakes, conform to A. R. A. requirements. The cars are all fully equipped with safety devices conforming to I. C. C. ruling.

The interior of all the house cars, with the exception of the tool car, have ceilings and walls lined with cellotex, secured to the framing, the joints of which are secured by the standard form of coach head lining battens, a quarter round mold being used at the joint of walls and ceiling. In applying the cellotex lining it was brought down to the floor line and faced at the bottom with a six-inch base board; at the door and window openings it was brought up to the frame and covered by the facia. Each of the house cars has a 30 in. by 78 in. end door of yellow pine in panel construction, fitted with a 21 in. by 24 in. light. The side doors on the kitchen and dining car are 36 in. by 82 in. and of the same construction as the end doors and are fitted with a 28 in. by 30 in. light. All doors are fitted with standard type of lock and knobs mortised. Screen doors are provided on all outside doors; double doors are used at the ends, and hinged at each side to provide a free passageway between the cars.

The interior woodwork such as partitions, lockers, base board, etc. in the cars comprising the living quarters is of yellow pine finished in the natural color. The windows are placed to obtain the best lighting effect and are fitted with top and bottom sash of the coach type and equipped with multiple lights, standard coach window catches being provided. The sashes are made of oak finished in natural color. Screens are provided for all windows.

The foreman's car contains a living room, bedroom, bathroom,



and cook's bedroom adjacent to the kitchen end of the kitchen car. The bathroom is equipped with a 4½ foot enameled bathtub on legs. One 17 in. by 19 in. Norfolk enameled iron lavatory and a 125-C Kaustine waterless toilet with a 28 in. by 50 in. septic tank underneath the car; a vent pipe extending from the hopper through the car roof. The hopper is set on a raised platform 9½ in. above the floor to provide the required room above the septic tank for the connections and maintain the proper rail clearance below.

The combination kitchen and dining car is divided into two compartments with an open doorway between. The kitchen end is adjacent to the washroom of the recreation car. A small compartment is provided in the kitchen for the Delco light unit and the Delco light pumps. Three removable wall panels are provided for access to the equipment. The kitchen is furnished on one side with a Stearns range adjacent to which is a 20 in. by 30 in. flat rim enameled sink with drain boards on each side with sufficient room at the end to accommodate a 140 Illinois refrigerator.

On the opposite side of the kitchen is a zinc-lined work table with lockers underneath for supplies and utensils. A 19 in. by 48 in. cupboard is provided at one end for dishes. In the dining room a 3 ft. by 10 ft. table, and 12 chairs are provided.

The recreation car is divided into a washroom and recreation room. The washroom is equipped with three 17 in. by 19 in. Norfolk enameled iron lavatories at the door end, and on the opposite side two shower stalls are provided. These shower stalls are lined with sheet zinc on walls and floor with a 4 in. Crane shower stall drain and a 4 in. Crane brass shower head with removable face in each stall.

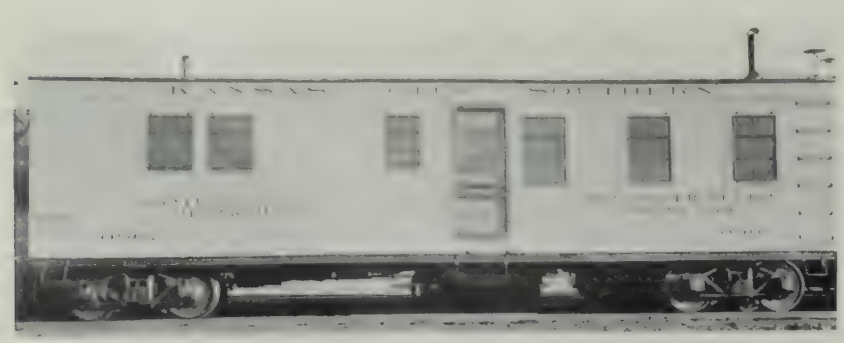
The toilet room is equipped with a waterless toilet of the same description and installation as that in the foreman's bathroom. Four lockers are provided in this room for the work crew. The furnishings in the recreation room consist of a 38 in. by 72 in. table and 12 chairs.

The bunk car has sufficient floor space to accommodate eight double-deck collapsible steel bunks with springs providing sleeping quarters for a crew of 16 if desired.

The tool car wall ends and ceiling are lined with 5½ in. T & G yellow pine, the same material being used for the top floor which is laid lengthwise over a sub-floor of 1¾ in. standard decking. The end doors are identical with those used in the other house cars; while an 84 in. by 81 in. door opening is provided on each side and fitted with the standard type of baggage car doors with ten 10 in. by 12 in. lights in each. At one end of the car and adjacent to the side door, is a workbench with an 8 in. bench vise attached. Between this bench and the end wall are two full height lockers with three shelves for tool storage. Opposite to these lockers is a tool rack extending from the floor to the ceiling.

The supply car adjoining the tool car has a coal bin 24 in. deep with a capacity of 12 tons of coal and two water supply tanks with a total capacity of 5700 gallons. A runway is carried over these tanks with a ladder at each end leading to the car deck.

Each of the four cars comprising the living quarters for the crew is equipped with an individual hot water heating system. These systems are composed of the American Radiator Co.'s Arcola heaters, equipped with thermostatic regulators, and peerless wall heaters ar-



ranged in four sections in four tiers. Each of these sections has 9 sq. ft. of radiation or a total of 36 sq. ft. per unit. The main supply lines from the heaters are carried overhead and supported from the ceiling in the center of the car with overhead laterals connected to drops to the radiators. An expansion tank fitted with a gauge glass properly vented is connected into the main supply line and placed above the line in a boxed opening in the ceiling. The returns from the radiators are secured to and carried along the base board to the heater. On the opposite side of the car from the heater the returns connect into a crossover to the heater which is laid under the top floor and heavily insulated, provision having been made for an opening between the deck boards for the crossover when the sub-floor was laid. The interior piping is left uncovered and, like the radiators, is finished in aluminum. The heater is a 5-H Arcola, except in the foreman's and the recreation cars which are equipped with a 8-H heater, fitted with a hot shot (Taco) coil, connection to the hot water system. The heating systems are filled by means of a valved connection from the cold water systems.

The entire water system is connected to the water supply tanks on the supply car through a heavily insulated pipe line carried on the underframes of the cars to the Delco light pump in the kitchen car, a standard signal hose being used for the connection between the cars.

The Delco light motor driven pump unit is set for a pressure of 15 pounds and delivers into the cold water system, a valved connection being used between the cold and hot water systems. The cold water system has an overhead tank capacity of 195 gallons in three tanks with an individual capacity of 65 gallons. These tanks are 18 in. by 60 in. fitted with valved vents and supported from the ceiling in the foreman's, recreation, and kitchen cars.

The hot water system has a total tank capacity of 130 gallons in two tanks of the same size as that mentioned. One tank is placed in the kitchen and connected to a hot water back on the range. The other tank is in the recreation car and is connected to the hot shot (Taco) coil in the Arcola heater. The hot and cold water systems in each of the three cars are connected together by extending the pipe lines through the end of the car overhead and using a signal hose for the connection, suitable valves being provided in the pipe line on the inside.

The lighting system consists of a Delco light plant without batteries connected to a two-wire train line carried in a ½ in. conduit extending through all house cars. This conduit is secured to the ceiling at the center of the car and is provided with outlets at the various locations selected for the lights. The train line at one end of the car terminates in the Russell & Stoll Co.'s connector receptacle.

Here's A Delicate Scale

The United States bureau of standards has recently completed the construction of a massive but delicate scale which, even with loads of 120,000 pounds, registers the addition or subtraction of one-tenth pound. It is a two-section plate fulcrum railroad track scale. Its principal function will be the frequent checking of the weight of railroad test cars with which the accuracy of thousands of commercial track scales is maintained. The precise weighing of freight cars is of importance in American railway transportation.

Among the Men Who Do the Work

RAILROADS of the United States and Canada paid claims in 1927 growing out of loss and damage to freight shipments amounting to $38,713,059, according to a report submitted by the freight claim prevention committee to the 37th annual convention of the freight claim division of the American Railway Association at Detroit, Mich. Compared with 1926 the freight claim bill of the railroads in 1927 was an increase of $525,744 but was a decrease of $59,038 compared with 1925.

For the year 1927, eleven of the sixteen causes for freight claims reflected reductions under 1926. The other five causes showed increases during the past year, compared with the preceding year, the greatest increase resulting from rough handling of freight in transit.

As a result of the improved condition of railway equipment, claims resulting from defective equipment in 1927 showed a reduction of $107,579 compared with the year before. Claims resulting from train accidents, robbery, error of employe, improper handling, loading and stowing and fire also showed reductions under 1926. Increases, however, were reported in the number of claims resulting from rough handling, delay and unlocated and concealed damage.

Claims growing out of loss and damage to freight shipments are being adjusted by the railroads with the greatest promptness ever achieved by them, according to the report, which showed that while more claims were presented in 1927 than in 1926, fewer were under investigation on January 1, this year, than on January 1, 1927. Claims presented in 1927 totaled 2,527,055, an increase of 35,199 over the number filed the year before, while claims under investigation at the beginning of the present year totaled 205,270, a decrease of 16, 193 or 7.3 per cent compared with the beginning of 1927.

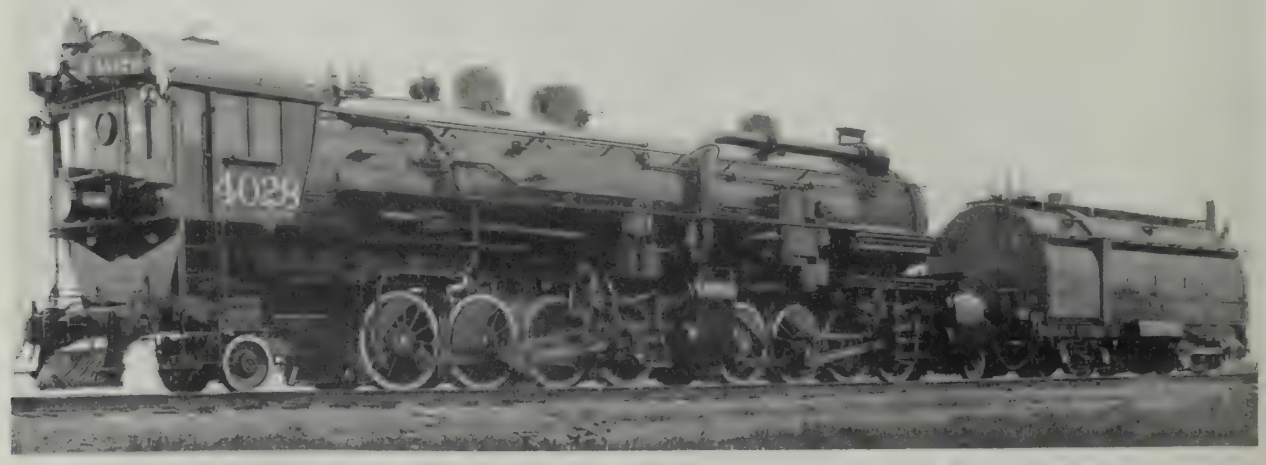
Fireman Dares Death

While two broken driving rods were tearing up the roadbed, a fireman of a Baltimore & Ohio locomotive climbed to the top of the engine and released the exhaust valves to prevent an explosion should the careening locomotive leave the rails.

The westbound express was traveling more than 40 miles an hour when the rods snapped near Plainfield, N. J. Engineer Mark S. Goodright applied airbrakes, but they did not function, he said later.

Arthur Bien, fireman, finding the engine continued to run madly on under its momentum, feared that the boiler would explode if it left the rails. He climbed to the top of the locomotive and clung there amid clouds of steam while he emptied the boilers through the valves. Half a mile from where the rods broke the train stopped. It was only then that passengers learned what had happened.

The mind is not a vessel which calls for filling. It is a pile which simply requires kindling wood to start the flame of eagerness for original thought and ardor for truth.—Plutarch.



The Reverse Arrangement Shown on This Southern Pacific Oil Burner, the Enginemen Say, Permits Better Visibility in Rounding Curves, and Gives Them Pure Air in Tunnels.

This Train Carried the Heavily Armed Legislators to the First State Capitol of Kansas At What Is Now Pawnee. The Train was Exhibited by the Union Pacific At the Restoration Ceremonies Last Month.

U. P. Restores First Kansas Capitol

Historic Structure Given to State

By J. P. Simpson

AN EVENT of more than ordinary interest was recorded August 1 when the old first territorial capitol of Kansas which stands partly on the Union Pacific right of way in the Fort Riley military reservation and which had been restored this summer by the Union Pacific, was formally turned over to the state.

Many passengers on Union Pacific trains have seen the old structure, about a mile east of Fort Riley station on the south side of the tracks—a two-story stone structure 40x80 feet, that had not been used, according to common tradition, since the one session of the territorial legislature, was held there in 1855. For many years it had been in tumble-down condition, with its roof and other wooden parts gone.

The one brief session of the legislature that was held there was a highly important skirmish in the battle to make Kansas a free state. The skirmish was lost to the free-state people, but it was one of the things that brought them to their toes and led to their later victory.

The state of Kansas never has made an appropriation large enough to do more than maintain the old structure, and that not in very good order. It became apparent, finally, that if the familiar landmark was really to be preserved someone outside the government of the state would have to do it. Naturally the job came to the attention of the Union Pacific, and that company undertook to finance and carry out the complete restoration. Naturally, also, the people cheered lustily. State officials declared themselves ready to cooperate. Indeed everyone was willing to cooperate except the forces that handled appropriations.

The engineering department of the Union Pacific had charge of the restoration, and the department spared no pains in finding out just how the building looked and was equipped before it decayed. Other buildings of the same period in the vicinity which had been better preserved were visited and their hardware, flooring, timbering and other details carefully noted. Old-time residents of the district were called on, and they told what they could of the building and its original furnishings.

In all this work, the engineering department had the able cooperation of William E. Connelley, secretary of the Kansas State Historical Society, who had already made extensive investigations concerning the building and who continued them and acted as adviser to the engineering department throughout the work.

The actual restoration was carried forward with similar care. Thick 3-foot-long shingles like the original handhewn ones were especially made, as were hinges and other hardware and the old-style square-back benches and desks

and tables for the legislative halls. Old-style broad-board floors were laid, kerosene lamps of both the hanging and table varieties installed, and wood stoves, for the first floor, and "drums" above them for the second floor, placed where the same kind of heating equipment had originally stood.

The grounds about the old capitol were leveled and seeded and walks and a drinking fountain installed, so that when the building and grounds were turned over to the state, they would have only to be maintained.

About 15,000 persons attended the celebration August 1. Those present included Governor Paulen; Charles Curtis, United States senator from Kansas and candidate for vice president of the United States; Arthur Capper, the other United States senator from Kansas; D. A. N. Chase, lieutenant governor; J. D. M. Hamilton, speaker of the Kansas house of representatives, and many other state officials, and officials of neighboring Kansas towns, of the state historical society and other civic bodies.

The United States Army and the Kansas National Guard also were well represented, Maj. Gen. Harry A. Smith of Omaha, commanding the Seventh Corps Area of the United States Army; Brig. Gen. Charles J. Symmonds, commandant at Fort Riley, and Brig. Gen. William McDaniel Rowan and Adj. Gen. Milton R. McLean of the Kansas National Guard being among the many officers present.

The ceremonies began with the arrival of Governor Paulen, accompanied by Senators Curtis and Capper and Generals Rowan and McLean. They were met at the Camp Funston gateway a half mile east of the old capital by 75 mounted officers and men of Troop B of the 13th United States cavalry under Capt. Ernest Williams and escorted to the old capitol.

Those attending the celebration were then guests of the railroad at a barbecue luncheon served by the dining car and hotel department. Following the luncheon, scenes from the original session of the legislature were re-enacted in the old building.

In formally presenting the building, C. R. Gray, president of the Union Pacific System, spoke of the genuine and lively interest that had been manifested by every one who had had a part in its restoration.

"It has been a labor of love," he said.

The Union Pacific, he said, liked to regard itself a citizen of Kansas, as of the other states that it served, and considered that, like any citizen, its duty was not merely to carry on its own special business but to uphold and forward as well as it could whatever was of real value in the community. It was in this spirit, he said, that the railroad had sponsored the restoration of the old capitol and was turning it over to the state, as a memorial of the heroic early days in Kansas.

Why Not Include Radios?

Motor horns having recently murdered all sleep in Paris, the police prefect, Jean Chiappe, is taking measures to suppress further offenses of this kind.

Between 1 a.m. and 5 a.m. henceforth Paris taxicab drivers will be deprived of their main delight of passing every street corner at top speed and making the maximum of noise for their protection. If they rely on horns instead of reducing speed at crossings, they will find themselves in trouble with the police, whose first function has always been to secure peaceful sleep for citizens.

By a consensus of all world tourists, Paris surpasses every other city in the voluntary noise its automobile traffic makes, and there is great rejoicing that at last steps are being taken to reduce this torment.

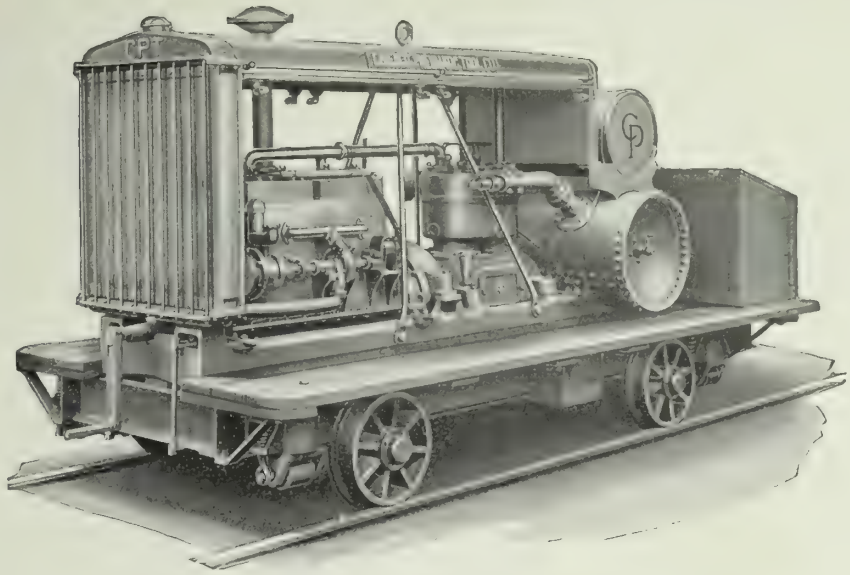
The mayor of Atlanta, Ga., has asked President Pelley of the Central of Georgia to stop the whistling of locomotives in and around the city. The noise, the mayor said, was keeping the town awake sometimes until 10 or 11 o'clock at night. Commenting on this the Savannah Press suggests that trains be run only between 10 a.m. and 6 p.m., when most of Atlanta will be awake anyway.

Miami, Fla., also has filed a protest against locomotive whistling. So many citizens have complained to police about "whistle insomnia" that the director of public safety has issued an order warning that excessive use of long whistles and bells within the city limits would be followed by speedy arrests.

Many Gateways

Southern Pacific is a system of many gateways, and for that reason has problems of its own in traffic solicitation. The shipper can easily be made to remember that the Santa Fe runs from Chicago to the Pacific Coast or that the Union Pacific hauls between the coast and the Missouri River, but it is not so easy to keep before him the many ways by which his shipment can reach and move over Southern Pacific Lines. In meeting this problem the Southern Pacific maintains 22 off-line agencies in this country, one in Canada, two in Mexico, and one in Cuba. Traffic headquarters are in Chicago, many miles from the nearest Southern Pacific rails. A map of the system, with off line agencies and gateways clearly indicated, is run repeatedly in publications reaching shippers, one of whom remarked that he could now almost draw the map in his sleep. Many shippers receive regularly every month a few blotters, bearing in addition to a calendar for the month and the preceding and following months the map mentioned, so that every time they blot a signature they see where Southern Pacific Lines reach and "where to reach them."

When the sea is calm, all boats alike show mastership in floating.
—Shakespeare.



New

Ready to go—under its own power—to handle almost any railroad service job where compressed air is needed, the CP Self-Propelled Gasoline-Engine-Driven Compressor makes possible a new efficiency in railroad maintenance equipment. The standard CP Compressor with its famous Simplate Valve, Auto-Pneumatic Throttle and other exclusive features, is mounted on a truck frame carrying flanged wheels with Timken roller bearings, transverse shifting wheels, a transverse towing winch and air-operated lifting jacks. The car is propelled at a speed of 12 to 18 miles per hour, depending upon the size. The compressor is furnished in sizes of 100, 160, 220 and 310 cubic feet per minute displacement. Bulletin No. 789 completely illustrates and describes this latest CP development and will be sent on request.

C-28

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How the Western Pacific Is Growing

Improved Facilities Described

By W. P. Powers

THE MAP shown here gives a good idea of how railroad transportation facilities have been developed in central California by the Western Pacific Ry., and its subsidiary and affiliated lines. It shows, too, how the Western Pacific and its subsidiaries, including the Western Pacific-California R. R. Co., propose to extend and improve these facilities, and to acquire or build new lines to serve territory not adequately provided with transportation service by rail.

A Western Pacific Fruit Train at Gerlach, Nev. Photograph Contributed by H. F. O'Neil of Sacramento.

The Western Pacific R. R. Co. embraces an independent, competing, transcontinental railroad system operating a through route from San Francisco and Oakland via Stockton and Sacramento, and thence via Marysville, Oroville and the Feather River Canyon through Nevada to Salt Lake City, where it connects with the Denver & Rio Grande Western and the Union Pacific for eastern points, also with local Utah lines.

In California the Western Pacific has branches from Hawley to Loyalton, Calpine Junction to Calpine, Gulling Junction to Gulling, Bidwell to Bidwell Bar, Glannvale to Bradford, Kingdon to Terminous, Carbona to Moy, and from Niles to San Jose.

The Western Pacific controls through stock ownership the Sacramento Northern Ry. and the Tidewater Southern Ry. The Sacramento Northern operates an electric line between Sacramento and Chico, with branch lines to Woodland, Swanston, Colusa and Oroville, and a detached branch known as the Vaca Valley line, from Vacaville to Suisun and Willotta. The Tidewater Southern operates an electric line from Stockton southward to Manteca, Modesto, Turlock and Hilmar. Interests allied with the Western Pacific control through stock ownership the San Francisco-Sacramento R. R., commonly known as the Sacramento Short Line, which operates an electric line between Oakland and Sacramento, with a branch line to Pittsburg. The Western Pacific also has a one-third interest in the Central California Traction Co. which operates an electric line between Sacramento and Stockton.

The Western Pacific-California R. R. Co., recently incorporated, which is a subsidiary of the Western Pacific R. R., proposes to construct a line of railroad from San Francisco to Redwood City, and from Nilegarden via Fresno to Kings River.

Existing lines and branches of the Western Pacific in California are shown on the map in heavy black lines. The Sacramento Northern, Tidewater Southern and the Sacramento Short Line are indicated by narrow black lines. The Central California Traction Ry. is shown by an alternately blocked double line. A dash and dot line traces the Holland branch of the Sacramento Northern now under construction. Broken lines indicate lines of railroad to be constructed as follows:

25 miles by the Western Pacific California R. R. Co., from San Francisco to Redwood City.

138 miles by the Western Pacific-California R. R. Co., from Nilegarden via Fresno to Kings River.

1.77 miles of belt line connections by the Western Pacific R. R. Co., in Oakland and Alameda.

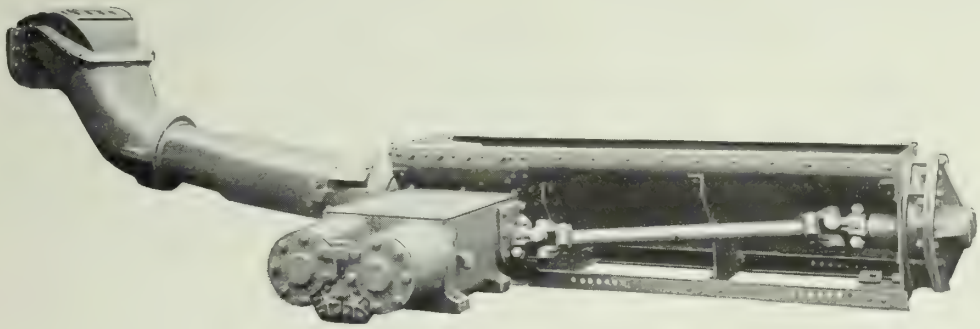
3½ miles by the Western Pacific Railroad Co., from Brack easterly.

7½ miles by the Sacramento Northern from a junction with its Holland branch to Ryde.

7½ miles by the Sacramento Northern from its Vaca Valley lines to Creed on the Sacramento Short Line.

36 miles by the Sacramento Northern from a point near Willotta on its Vaca Valley line to Petaluma, this being contingent upon acquisition of the Petaluma & Santa Rosa R. R. by the Western Pacific.

Light lines show the Petaluma & Santa Rosa R. R. which also operates a steamer line between San Francisco and Petaluma, and



Better Utilization of Existing Power

SUSTAINED horse-power is the measure of locomotive earning power.

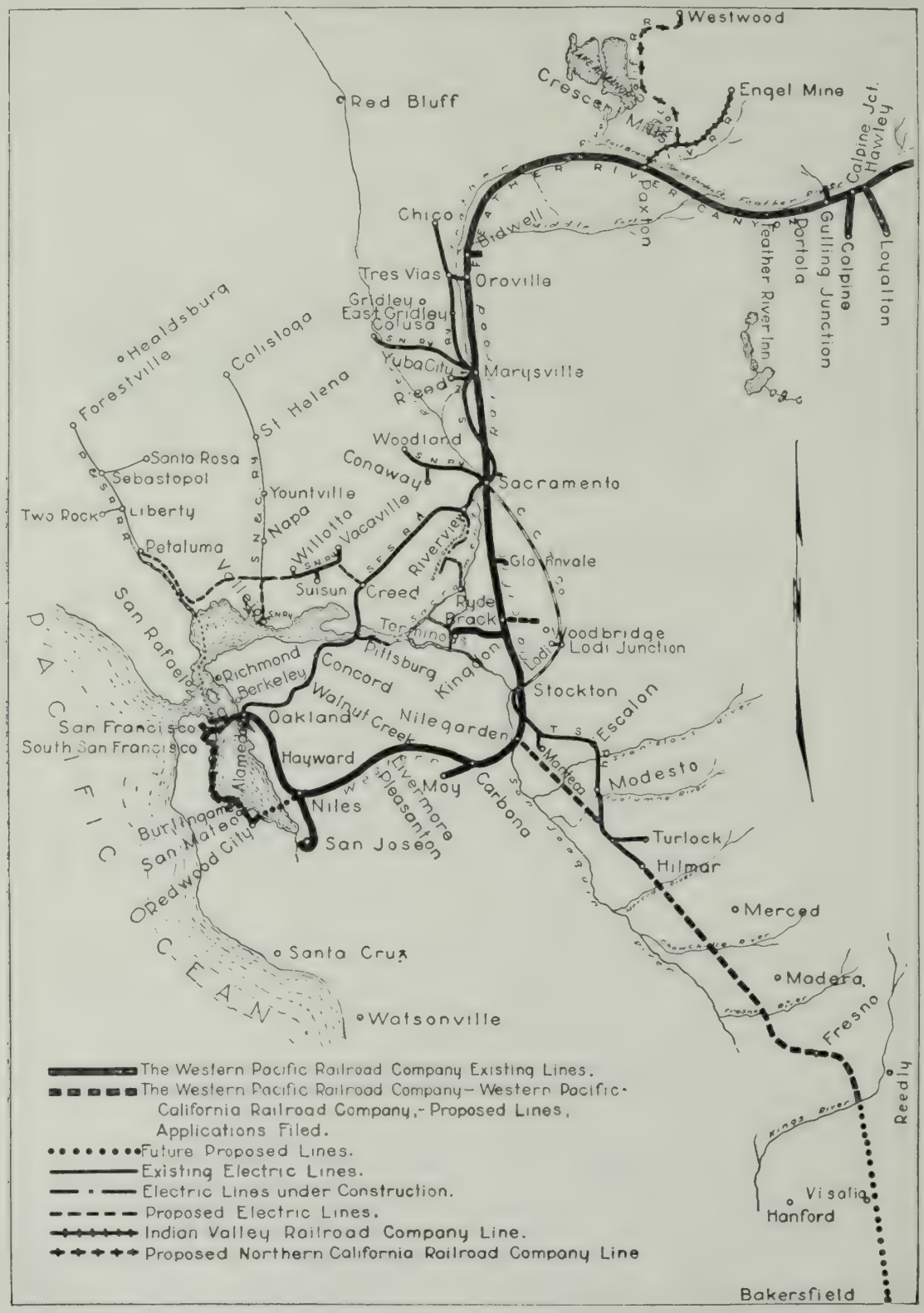
Only by getting its full potential ton-mile-per-hour capacity can existing power be profitably utilized.

This calls for stoker firing to develop full steaming capacity regardless of the size of the locomotive or operating conditions.

The Simplex Type "B" Stoker is economically applicable to any locomotive fit for modern transportation service.

THE STANDARD STOKER COMPANY, Inc.

New York Erie Pittsburgh Chicago



the San Francisco, Napa & Calistoga Ry. Santa Rosa, Forestville, Sebastopol and Petaluma, which are on the Petaluma & Santa Rosa R. R., and Vallejo, Napa, Yountville, St. Helena and Calistoga, which are on the San Francisco, Napa and Calistoga Ry., will gain a new transcontinental all rail outlet if the route proposed by the Western Pacific across Sonoma, Napa and Solano counties is created. Acquisition of the Petaluma & Santa Rosa R. R. by the Western Pacific, construction of the Willotta-Petaluma extension of the Vaca Valley lines of the Sacramento Northern, and construc-

(Continued on Page 52)

Balkwill Articulated Manganese Crossings

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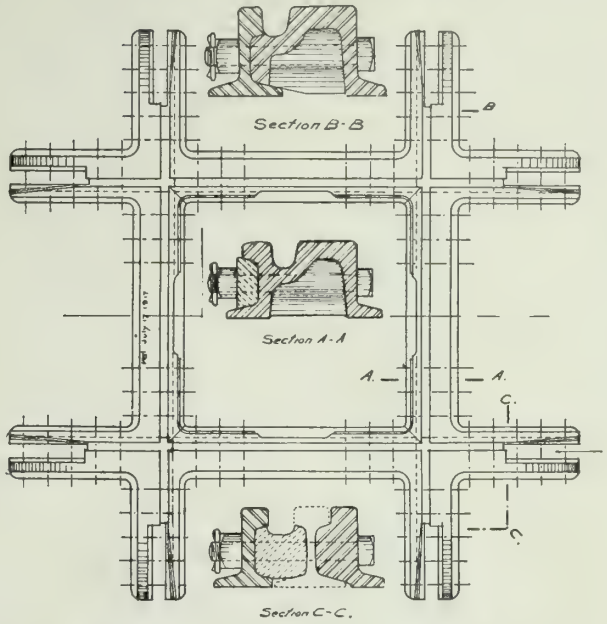
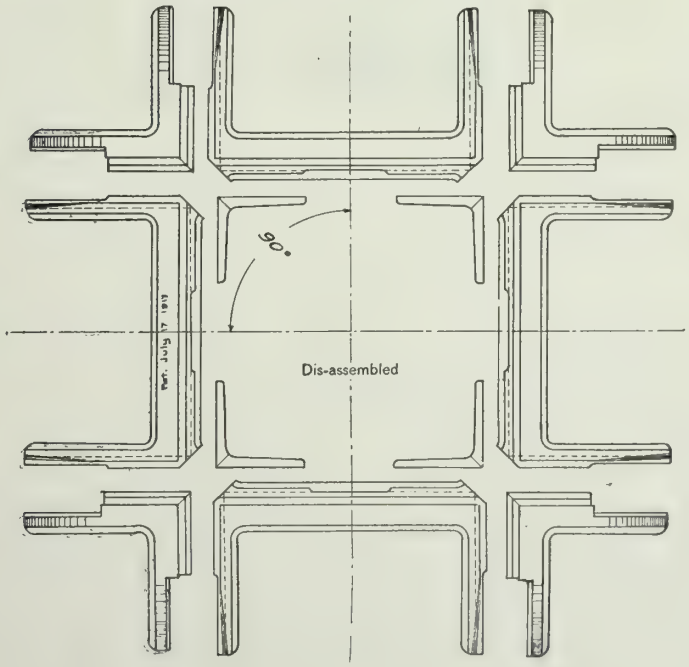
Switches

Crossings and Frogs



Guard Rails

Bolted



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tion of the connection between the Vaca Valley lines and the Sacramento Short Line will establish the route.

Map limitations do not permit showing in detail development planned in the industrial districts of Oakland and Alameda, where the Western Pacific, already heavily interested, has purchased one-half interest in the Alameda Belt Line and has made a contract to purchase the Union Belt Ry. of Oakland. Acquisition of the Union Belt Ry. of Oakland, and construction of a rail connection by the Western Pacific with both of these belt lines awaits decision by the Interstate Commerce Commission which has heard the application for the necessary certificate of public convenience and necessity.

The map also shows the line which the Northern California R. R. Co. proposes to complete between Westwood and Crescent Mills by the construction of 16 miles of railroad at an approximate cost of $400,000 connecting at Crescent Mills with the Indian Valley R. R. (also shown on the map) and thence with the Western Pacific at Paxton, which would provide a new route from Westwood and the timber belt lying north of the Western Pacific to Central California and points south and also to the East.

As the map is confined to Western Pacific lines in California it does not show its lines in Nevada or Utah nor does it show the connection which the Western Pacific is about to construct between its main line and the Oregon Short Line at Wells, Nevada. This connection will afford a new route between points in Central California and points in Idaho and Montana.

N. Y. C. Indicators

To simplify passenger loading at Grand Central Terminal, New York, for long haul destinations, four new double and 12 single train indicators have been installed on the upper concourse at the gates leading to track platforms. These indicators are of original design and have no duplicates anywhere. Their unique features include the elevation of station destinations and Pullman car numbers at a height that serves to make both indications easily observable, even during congested conditions at the train gates.

The new indicators are of all-metal construction with the exception of the curtains used to indicate station destinations, train names, and leaving time. Each indicator is divided into two parts, the upper carrying the mechanism for displaying the curtains and numbers of Pullman cars. The lower part carries cabinets in which are stored the roller curtains for the trains and the numbers of the Pullman cars.

The part of the indicator between the cabinet section and the extreme top, the track number on which appears in bold letters, carries the display panels as the curtain is carried up over this space. In this section the curtains on rollers are operated by spur gears, counterbalances and transfer chains at an equal tension, controlled by a small hand crank. The chains are so located as to prevent wrinkles, and to make it impossible for the curtains to lose contact with the chain hooks.

The rack on the side of the indicator on which the Pullman car information is displayed is of the continuous type, and can be pushed up or down at the will of the gateman or station employe designated to arrange the indicator for train departures. The numbers are placed under each other and when displayed give a graph of car locations starting with the rear end at the bottom and ending with the front end at the top.

The new indicators have met with general public approval from the passengers using Grand Central Terminal and have also attracted considerable attention in the railroad world because of their unique design and effectiveness.

The new indicators were built by Job Hutchinson, a contractor of Great Neck, Long Island, after original designs prepared by P. F. Solan, supervisor of buildings, Grand Central Terminal.

Planes Spoil His Slumber

Using an action for an abatement of a nuisance in an effort to stop the flight of airplanes over his estate at North Grafton, Harry Worcester Smith, millionaire sportsman, has sought relief in the superior court at Worcester, Mass., early last month.

The bill for relief of what he terms the "nerve-racking din" of the planes day and night was brought against the Worcester Airport, Inc., whose plant adjoins Smith's 400-acre estate.

The action probably is the first of its kind.

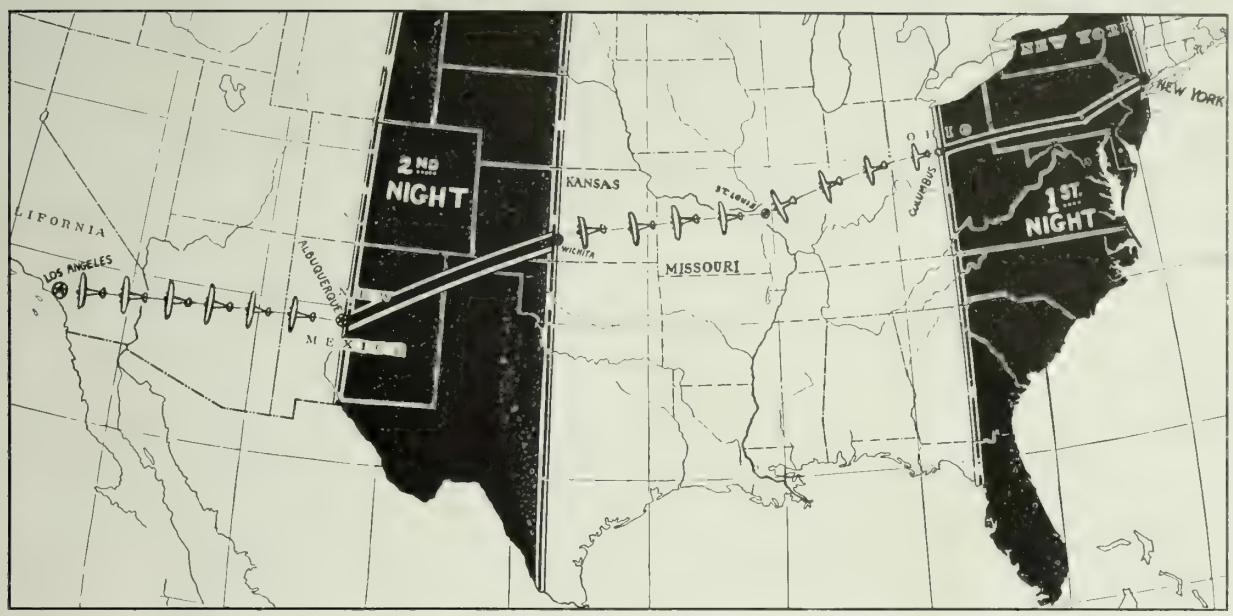
When you have decided that a thing ought to be done and are doing it, never avoid being seen doing it, though the many shall form an unfavorable opinion about it. For if it is not right to do it, avoid doing the thing; but if it is right, why are you afraid of those who shall find fault wrongly?

—Epictetus.

We exaggerate misfortune and happiness alike. We are never either so wretched or so happy as we say we are.—Balzac.

The News of the Month

What's Been Going on in Transportation, Railroads, Automotive, Supply, Aviation



How the Time Is Divided on An Air-and-Rail Journey of 48 Hours Across the Continent. First Night, Train From New York to Columbus, O.; Airplane to Wichita, Kan.; Train to Albuquerque; Airplane to Los Angeles.

THE FIRST participation by a transcontinental railroad in the new rail-and-air passenger service was scheduled for September 1 between St. Paul and Chicago, under the direction of Northwest Airways, Inc., cooperating with three of the great transcontinental trunk railroads of the Northwest.

It is actually the first bid for favor of the traveling public on the part of Transcontinental Air Transport, Inc., Col. Charles A. Lindbergh's outfit, which has bought into Northwest Airways.

A tri-motored, fourteen-passenger transport, capable of 140 miles an hour and always cruising at 115 miles or better, reducing the 12-hour train journey to three or three and one-half hours, arrived at Detroit August 31 on its maiden trip to Chicago. From St. Paul the airplanes connecting with the morning trains from the Pacific Coast and the Northwest will make the trip to Chicago in 3½ hours, connecting with the trains for the East and South leaving Chicago just after noon. The plane flying in the opposite direction will leave Chicago at 3 p.m. and arrive in ample time to connect with the trains leaving St. Paul and Minneapolis at night. In this new service is involved rail, air and highway motor transportation. The motor equipment will carry the passengers from the train or plane to the rail station or airport. By September 15, it is believed, regular air-rail service will be in operation between New York and the Pacific Coast.

The general plan is to carry the passengers by air during the day and by rail during sleeping hours. Leaving New York at the close of the business day on one of the limited trains, the travelers may have a good night's rest and then breakfast in Columbus, Ohio. From there they will fly over Ohio and Indiana, stopping for lunch at St. Louis, and continue in the air during the afternoon to Wichita. Here they change back to a Pullman on the Santa Fe Railway which takes them to Clovis or Albuquerque, N. M. One more lap by airplane and they arrive in Los Angeles, approximately 48 hours after leaving New York.

To Study N. Y. Terminals

Port of New York authority announces that the railroads entering the New York harbor district have agreed to appoint a contact committee to study its modified union freight terminal plans. The port authority at present contemplates establishing a single union freight station to be operated experimentally to determine whether further expansion of the inland station program is desirable. The port authority offered a plan in 1925 creating nine such stations on Manhattan Island to replace the separate freight facilities of the several railroads.

Receipts Higher in Mexico

Gross receipts of the National Railways of Mexico during the first three months of this year aggregated 29,004,432 pesos (about $14,085,000), while expenditures were 25,200,503 (about $12,235,000). Net receipts, which amounted to 3,803,929 pesos (about $325,500), were more than double those for the first three months of 1927, when gross receipts and expenditures were 27,315,579 pesos and 25,425,717 pesos, respectively.

Bus Lines in Merger

Consolidation is announced of the Capital Terminal of New York and the newly organized American Motor Transportation Company to form what is believed to be the first coast-to-coast motor bus transportation system. New York, under the consolidation, becomes the main eastern terminal, with lines radiating to San Francisco and other far western cities and others to be established between this city and Boston, Washington and Baltimore. The unit will be known as the Yelloway Pioneer System, Inc.

W. E. Travis, president of the $7,-

500,000 consolidated system, said that more than 150 small companies or bus route operators now are part of the system and that when additions are completed the company's lines will operate over approximately 70,000 miles daily.

Operating subsidiaries include the California Transit Company on the Pacific Coast; Pioneer Southwestern Stages from Los Angeles to Denver, and Pioneer Stages east of that city.

P. R.R. to Build in Jersey City

The Pennsylvania Railroad is considering plans to replace its station at Exchange Place, Jersey City, N. J., with a ten-story office building similar to the Hudson Terminal Building in New York City. The ferry house at the foot of Exchange Place, the train shed adjoining it and the large brick office building will be demolished to make way for the improvement. Trains will enter the new station underground. This will necessitate the line being electrified to Newark and will mean the elimination of Manhattan Transfer. It is also expected to result in the proposed produce terminal being established on the meadows. It is also planned to exchange the city-owned Morgan street pier for Pier B, owned by the Pennsylvania Railroad. The railroad plans razing the Morgan street pier and replacing it with one costing $2,500,000. It is now inaccessible as a city-owned dock, but the city would transform Pier B into a combination dock and recreation center.

Live Stock Rates Cut

A reduction of approximately 12 per cent in railroad rates on live stock moving eastward from Chicago and moving between points in central territory has been ordered by the Interstate Commerce Commission, effective October 1.

Earnings and Net Lower

Class I railroads, for the first six months this year, had a net railway operating income of $462,025,181, which was at the annual rate of return of 4.36 per cent on their property investment, according to reports filed by the carriers with the bureau of railway economics. In the first half of 1927, their net railway operating income was $472,-998,330 or 4.57 per cent on their property investment. Property investment is the value of road and equipment as shown by the books of the railways, including materials, supplies and cash. The net railway operating income is what is left after the payment of operating expenses, taxes and equipment rentals but before interest and other fixed charges are paid.

This compilation as to earnings for the first half of 1928 is based on reports from 185 Class I roads representing a total mileage of 239,892 miles.

Gross operating revenues for the first six months in 1928 totaled $2,906,856,367 compared with $3,024,939,350 for the same period last year or a decrease of 3.9 per cent. Operating expenses for the first half of the year amounted to $2,-205,665,746 compared with $2,310,550,-185 for the same months one year ago or a decrease of 4.5 per cent.

Class I roads in the first six months of 1928 paid $181,872,635 in taxes, compared with $185,373,886 for the same period the year before. For June alone, the tax bill of the Class I roads amounted to $31,547,485, a decrease of $579,-614 under June the previous year.

Twenty-six Class I roads operated at a loss in the first half of 1928, of which ten were in the eastern, one in the southern and 15 in the western district.

Santa Fe Gets the Orient

The Interstate Commerce Commission has approved the application of the Santa Fe Railway to acquire control of the Kansas City, Mexico & Orient Ry. by purchase of its capital stock.

Already owning subscription rights to 15,561 shares of the Orient's capital stock, the Santa Fe Railway was authorized to acquire the 20,439 remaining shares at $415.50 a share; total $14,-507,500.

The Orient Railway extends 735 miles from Wichita, Kan., to Alpine, Tex., and all of its property, including cash and current assets, will be placed under control of the Santa Fe Railway by the transaction.

Current Shipbuilding

American shipyards were building or were under contract, August 1, to build for private shipowners 377 steel vessels of 213,817 gross tons compared with 396 steel vessels of 225,740 gross tons on July 1, 1928, according to the bureau of navigation, department of commerce. There were 78 wood vessels of 42,557 gross tons building or under contract to build for private shipowners during the same period compared with 87 wood vessels of 38,670 gross tons on July 1, 1928.

Revenue Loading Higher

Loading of revenue freight for the week ended August 18 totaled 1,056,905 cars, the car service division of the A.R.A. reports. This was an increase of 12,463 cars above the preceding week, due principally to the increased loading of miscellaneous freight. Increases were also reported in the loading of grain and grain products, live stock, and ore, while coal coke, forest products and merchandise less than carload lot freight showed decreases. The total for the week of August 18 was a decrease of 9,923 cars below the same week in 1927 and a decrease of 24,598 cars below that week two years ago.

Miscellaneous freight loading for the week totaled 414,285 cars, an increase of 8,058 cars above the same week last year and 16,304 cars above the same week in 1926.

Coal loading totaled 160,720 cars, a decrease of 12,723 cars below the same week in 1927 and 25,001 cars below the same period two years ago.

Grain and grain products loading amounted to 61,170 cars, an increase of 7,125 cars over the same week last year and 10,296 cars above the same week in 1926. In the western districts alone, grain and grain products loading totaled 43,152 cars, an increase of 6,915 cars above the same week in 1927.

Live stock loading amounted to 25,-521 cars, a decrease of 4,013 cars below the same week last year and 4,367 cars below the same week in 1926. In the western districts alone, live stock loading totaled 19,089 cars, a decrease of 2,688 cars compared with the same week in 1927.

Daily Movement Improves

The average daily freight car movement for the first six months of 1928 was the highest for any corresponding period on record, amounting to 30 miles a day, the bureau of railway economics has announced. This was an increase of one-tenth of a mile over the corresponding period last year and an increase of one mile over the same two years ago.

The daily average movement for June this year was 30.4 miles, which also established a new high mark for any corresponding month on record. This exceeded by four-tenths of a mile the average for the same month last year and was also an increase of three-tenths of a mile over June, 1926. The average carload for the first six months this year was 26.3 tons, a decrease of one ton below the average for the first half of 1927 and a decrease of six-tenths of a ton below that for 1926. The average carload for June, this year, was 26.3 tons compared with 27 tons in June, last year, and 27.3 tons in June, 1926.

Ton Miles Show Decrease

The volume of freight traffic handled by Class I railroads during the first six months this year amounted to 223,-845,340,000 net ton miles, the bureau of railway economics reports. This was a decrease of 10,158,687,000 net ton miles or 4.3 per cent under the same period

in 1927 and a decrease of 3,289,873,000 net ton miles or 1.4 per cent under the same period in 1926.

For June, the volume of freight handled by the Class I railroads amounted to 37,303,710,000 net ton miles. This was a decrease of 1,173,201,000 net ton miles or 3 per cent below the corresponding period last year and a decrease of 1,948,435,000 net ton miles or 5 per cent below the same month in 1926.

Railroads in the eastern district for June reported a decrease of 4 per cent in the volume of traffic compared with the same period in 1927, while the southern district reported a decrease of 10.1 per cent. The western district reported an increase of 1.1 per cent.

Big Timbers Cross the Continent

Thirteen timbers, each 102 feet long and believed to be record breakers in length, are on their way to West Virginia after three weeks of travel on four railroads and much work by engineering departments to determine how they could be loaded for safe travel. The lumber was cut in Western Washington from fir trees 200 feet tall and was shipped by the Marsh & Truman Lumber Co. of Chicago for the construction of a dredge for the Kanawha Sand Co. of Parkersburg, W. Va. Each timber is one foot and six inches thick. The engineering problem was to determine how they could be loaded. Three cars were used. By chaining the ends on two cars, the center one acted as a swivel for the sharp curves, preventing them from breaking loose. The four railroads handling the shipment were the Union Pacific, the Chicago & North Western, the Elgin, Joliet & Eastern and the Baltimore & Ohio.

British Returns for 1927

The railroad industry's income during the calendar year 1927 was over £220,000,000 and its expenditures £177,000,000. The total capital spent to date on the construction of railroads, tracks, stations, rolling stock, etc., is nearly £1,000,000,000, and the maintenance and renewal cost of this equipment averages £40,000,000 a year. Goods and mineral traffic totaled 325,000,000 tons, of which coal represented 190,000,000 tons and general merchandise 60,000,000 tons. The number of locomotives owned was 24,013, rail motors 94, electric coaching vehicles 4,575, and passenger coaches 51,465, with a seating capacity of 2,792,726. The number of merchandise and mineral vericles owned was 718,249, with a total tonnage capacity of 7,721,269 tons; 24,659 wagons of 20 tons and over are in use. Pullman cars in use during the year numbered 191. Of the 1,596 passenger coaches built in 1927, 1,588 were fitted with electric light; 679 locomotives and 30,297 wagons were constructed or purchased during 1927.

Maddux Air Traffic Grows Quickly

Traffic of the Maddux Air Lines, Inc., for August reached a total of 1743 paid passengers, a gain of nearly 50 per cent over July traffic. This performance produced an increase of 58 per cent in revenue, J. L. Maddux, president, announced at the first annual meeting of stockholders Sept. 4.

Another Air Line and Lower Rates

Another passenger air line with service to all Pacific Coast points, has just been announced. This is the Union Air Lines, Inc., now operating between Seattle, Portland and San Francisco. The new service will connect with three transcontinental air lanes to Chicago, with palatial 35-passenger double-decker planes. Service will start in October. The company will use 8, 14 and 35-passenger Bach planes. The big flying yachts will be used on the main air lines and the smaller ships on the feeder lines. Freight service will be maintained

Men and Money

HERBERT C. HOOVER, presidential nominee, has declared that increased efficiency of the nation's railways is now saving shippers more than one billion dollars annually.

This high stage of efficiency is traceable to the investment during the last six years of nearly five billion dollars in improvements and extensions of railway facilities and equipment, and to the great economies effected through improved management.

Last year the Class 1 railways of the United States performed service equivalent to carrying each inhabitant 284 miles and transporting for him 3,613 tons of freight a distance of one mile.

Due to huge investments in new cars, locomotives, side tracks and yard facilities, and to the more rapid movement of freight trains, car shortages, formerly so costly to the shipper, have been practically eliminated. Prompt and speedy delivery of freight has enabled "hand to mouth" buying by merchants, thus releasing to more profitable employment hundreds of millions of dollars, formerly "frozen" in large inventory stocks.

Thus men and money, working together, have given America the most efficient, economical, dependable and safest land transportation ever known.

SOUTHERN PACIFIC

on night schedules and passenger service will be in daylight.

A fare of $30 or $35 from Los Angeles to San Francisco is promised by the company, with correspondingly low fares on all other lines. The 35-passenger ships will be the largest ever seen on the coast.

They will have a spread of 85 feet on the upper wings, 65 feet on the lower, and a 32-foot double-deck cabined fuselage.

Electric Railway Convention

The American Electric Railway Association's yearly meeting is to open at Cleveland, September 22, and continue to September 28, in the Public Auditorium.

Bridge Builders in October

The American Bridge and Building Association will meet October 23-25 at the Hotel Statler, Boston. A special train provided by the Canadian National, the Central Vermont and the Boston & Maine railways will leave Chicago Sunday morning, October 21, and arriving at Boston the next evening traveling by way of Toronto and Montreal. The Bridge and Building Supply Men's Association is to have an unusually large exhibition. C. A. Lichty, secretary, 319 Waller avenue, Chicago, is making reservations for space on the special train.

Now an Aircraft Inspector

Paul F. Baer has been appointed by the department of commerce as aircraft inspector for South Texas. Mr. Baer has offices in the Houston Chamber of Commerce Building, making the second such office in Texas, a similar inspector being stationed at Dallas.

The Roadmasters' Meeting

The 46th yearly convention of the Roadmasters' Association is to be held September 18-20 at the Book-Cadillac hotel, Detroit. The first session will be called to order at 10 o'clock Tuesday morning, September 18, after which C. G. Bowker, general manager of the Grand Trunk Western, will deliver the opening address. This will be followed by the address of the president of the association, J. P. Davis, engineer, maintenance of way, Central Indiana; the appointment of committees, and a report by a committee on the Care of Winterlaid Rail, to be presented by M. J. Nugent, assistant engineer, Delaware & Hudson, the chairman.

Morning and afternoon sessions with reports from committees and special addresses are scheduled. Tuesday evening has been set aside for a discussion of safety in track work, motion pictures, and an address by C. E. Hill, general safety agent for the New York Central.

The yearly banquet given by the Track Supply Association will be given Wednesday evening, September 19.

Sixty or more firms have reserved space for exhibits in the Track Supply Association's usual display.

To Build Sahara Line

The Paris Official Journal has promulgated a law formally establishing the Trans-Saharan commission, to start to work immediately on the desert railway which is destined to consolidate the French empire in Africa. Since future credits for the railroad are foreseen in state appropriations and quotas furnished by big railroads, work is expected to be completed in five years, after decision is made on the exact route of the line.

Rock Island Builds in Texas

The Rock Island has filed with the I.C.C. an application to build from Stinnett northwardly 33 miles to Gruver. The Chicago, Rock Island & Gulf Company, a subsidiary of the main system, would undertake the work with financing aided by the parent corporation. The proposed extension would constitute a part of a 108-mile line which will eventually run north from Amarillo, Texas, into Oklahoma.

S. P. Earnings Grow

For the seven months ended in July, net railway operating income of the Southern Pacific amounted to $26,892,527, an increase of $2,997,969, or 12 per cent, over the same period in 1927. In July, operating income totaled $5,049,393, an increase of $1,140,853, or 29 per cent over July of last year.

Railway operating revenues in the first seven months were $166,037,728, leaving net revenue from railway operations after the deduction of operating expenses of $42,095,142, an increase of $2,767,993. For July, the net revenue from railway operations was $7,366,069, a gain of $973,999.

U. P. to Use Buses

Application was made some time ago by the Union Pacific to the California railroad commission for permission to discontinue all branch line passenger train service on the Pasadena, Anaheim and San Pedro branches, except trains 43 and 44 on the last named branch. These trains handle a Chicago-Long Beach sleeper, and for that reason it was decided to retain those trains in service, provided the commission approves the application to abandon passenger trains on the three branches named.

If the application is approved, the Union Pacific proposes to establish motor parlor bus service in lieu thereof. A hearing upon the application was given by the commission August 13, but no order has yet been made.

"When and if the commission approves our proposal," says F. H. Knickerbocker, general manager, "we shall proceed promptly to purchase the necessary motor bus equipment, construct garage facilities adjacent to our East Yard shop plant, and take the other necessary steps to establish motor bus service in lieu of branch line trains. It is not our present intention to handle any local business with our proposed bus service; our plan at present merely contemplates supplanting branch line passenger trains with a more up-to-date parlor bus service."

S. P. to be Sole Owner

Final preliminary steps for complete control of the Northwestern Pacific Railroad by the Southern Pacific were taken Sept. 4 when sale agreements were forwarded to the Interstate Commerce Commission by which the Santa Fe agrees to relinquish its present one-half interest in the road for $4,443,349. Hitherto, the Northwestern Pacific, which operates north from San Francisco Bay, has been controlled jointly by the Southern Pacific and Santa Fe.

Joint announcement of the mailing of the agreements was made by E. H. Maggard, president of the Northwestern Pacific, and William Sproule, president of the Southern Pacific. Maggard said no change will be made in the present management or personnel and the Northwestern Pacific will continue to operate as a separate company.

Cotton Rates Lowered

The Texas railroad commission has granted permission for railroads serving the Rio Grande Valley of Texas to lower the rate for hauling baled cotton. This cotton is shipped from various points of the valley to Corpus Christi for export. The new rail rate is on a basis of $3 a bale, which is about $1 cheaper than formerly. The reduction was brought about in order that railroads could compete with motor trucks operating in the section at rates lower than the former rate of the railroads. The roads interested were the Southern Pacific, the Missouri Pacific and the Texas-Mexican Railway.

Chance for Men to Save

Opportunity for employes of the Boston & Maine to purchase 7 per cent cumulative prior preference stock on monthly payments, under a plan developed by the directors, has been announced. The stock, quoted recently on the Boston Stock Exchange at about

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"Does the Work of an Army of Men"
SNOW PLOW ★ ICE CUTTER ★ DITCHER
UNIVERSALLY STANDARD
O. F. JORDAN COMPANY
WALTER J. RILEY, PRESIDENT
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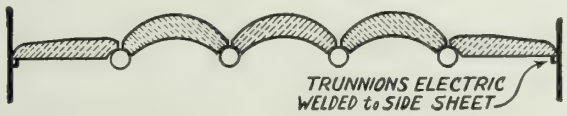
SPREADER - DITCHER

Indispensable in mines, on railways, public works, industrial plants, etc.

Built in Standard and Narrow Gauge Sizes

Economy Baffle Walls

for Steam Locomotives



"ECONOMY" method—

1. **Eliminates liability of side brick dropping into fire bed.**
2. Insures maximum life of brick with minimum weight on arch tubes.
3. **Eliminates the necessity of straightening or replacing bent arch tubes, due to wedging effect.**
4. Closes the "pockets" between brick and side sheets, where slag and "honey-comb" accumulate, thus increasing the active firebox heating surface.
5. Provides radiant heat for more complete combustion near side sheets.

ECONOMY ARCH COMPANY

Distributors of locomotive arch brick for
EVANS & HOWARD, LACLEDE CHRISTY and A P GREEN FIREBRICK COMPANIES

1843 RAILWAY EXCHANGE BUILDING ST. LOUIS, MISSOURI

Passenger Station for the Monongahela Railway, Now Being Erected at Brownsville, Pa., to Cost $400,000.

$110, is offered to employes at $103. Payments, which are to be completed in from 14 to 23 months, will earn 7 per cent interest from dates of payment. This interest will be credited on the purchase price.

Dotsero Cut-Off Advances

Another step looking toward the establishing of a third transcontinental rail line through the newly completed Moffat tunnel under the continental divide has been taken by the Denver & Salt Lake Railway in requesting a hearing by the Interstate Commerce Commission on its application for authority to build the Dotsero cut-off. The Colorado state utilities commission will conduct the hearing Sept. 18 for the I.C.C.

The Dotsero cut-off, linking the Denver & Salt Lake rails with those of the Denver & Rio Grande Western, is necessary to place the six-mile tunnel under James Peak on a transcontinental route. That done, the distance between Denver and the Pacific Coast would be reduced by 173 miles under the present mileage over the divide.

Gas Electrics for Peninsula Line

Substitution of the most modern gas and electric motor cars for steam trains during off peak hours on the peninsula lines of the Southern Pacific to be placed early in 1929, has been announced. The new cars will have a seating capacity of 60, with smoking compartment. Each has sufficient motor power to handle one or more additional coaches.

Stage Earnings Increase

Net income of the California Transit Co., one of the largest motor stage systems on the Pacific Coast, totaled $61,009 for July, compared with $50,200 for the same month of 1927. For the seven months ended July 31, last, net earnings were $231,315, against $133,196, for the same period in 1927. This represents a gain of more than 73 per cent.

A New Short Line Born

Just as the last form is being prepared announcement comes telling of the organizing of the Timken-Gambrinus Railway Co. General offices are at Canton, O. Walter C. Sanders is president and Judd Spray vice president. Other officers are: M. T. Lothrop, vice president in charge of operation; W. E. Umstattd, vice president, traffic; J. F. Strough, treasurer; W. A. Brooks, auditor; W. A. Baum, general manager; I. R. Wagner, general superintendent; J. G. Obermier, master mechanic, and T. V. Buckwalter, chief engineer. In addition to other things the company has four miles of track, three steam locomotives, two gas locomotives and 18 freight cars.

Air Hoists With New Features

The Chicago Pneumatic Tool Co., 6 East 44th street, New York, announces a line of CP Air Hoists embodying several new distinctive features. The three sizes now available have a capacity of 2000, 3000 and 4000 pounds respectively and have an enclosed type load block. The motor is four cylinder, single acting and practically vibrationless. Being unusually compact, these hoists require less head room than customarily needed. A balanced type control valve assures smooth and positive control. The lifting speed has been considerably increased; for example, the 1-ton size will lift 2000 pounds at a speed of 40 feet a minute. Other features include case hardened steel reduction gears, crank-shaft that runs on large size ball races, brake drum lines with Johns-Manville asbestos brake lining and alemite lubrication. Special publication No. 1669 will be sent to those writing the manufacturers at the address given.

Puerto Isabel Line Changes

The concession for construction of railway from Mexicali to San Felipe, Lower California, which is held by the Colorado River Land Co. of Mexicali, has been changed so as to authorize instead the construction of the main railway to a point near the mouth of the Colorado River and about seven kilometers (4 to 5 miles), southeast of Puerto Isabel which is on the east coast of the gulf. The company is also given the option of constructing and operating branch freight and passenger lines along its irrigation canals and on its flood defense dikes and the main line to Puerto Isabel is to be completed within four years from February 22, 1928,—the branch lines to be completed within the period or periods to be stipulated in special concession contracts to be made in each case.

Reading for Mechanical Forces

Booklets certain to be interesting and valuable to men employed in the mechanical departments, and to others also for that matter, is available upon application to the Superheater Company, 17 East 42nd street, New York. The booklets are: "The Design and Proportion of Locomotive Boilers and Superheaters," by C. A. Brandt, chief engineer of the Superheater Company. This paper is from the address by Mr. Brandt before the Canadian Railway Club at Montreal, February 14, 1928.

"Elescooperation," briefly sketches the service of the Superheater Company to the railway field and the wide application of its locomotive devices.

"Remanufacturing Unserviceable Superheater Units," discusses various advantages of superheater unit reclamation service, now being used by a number of railroads.

"1928 Locomotive Progress," illustrates a number of representative examples of modern locomotives which give a fair cross-section of American motive power of today. For each locomotive illustrated the general dimensions are given, carefully compiled from the records of the engineering department and checked against and supplemented by those of the builders.

Foreign Railway News

Various American bankers are reported to be negotiating a $100,000,000 Polish railway loan. The chief obstacle is said to be the difficulty of working out a satisfactory lien for the issue in view of the existing liens on the earnings of the railway. There are over 12,000 miles of railway, made up of lines formerly part of the national railways of Russia, Germany, and Austria.

Net Operating Income Higher

Class I railroads had a net railway operating income in July amounting to $95,226,267 which, for that month, was at the annual rate of return of 4.34 per cent on property investment, according to reports filed by the carriers with the bureau of railway economics. In July, 1927, their net railway operating income was $85,135,153 or 3.97 per cent on the property investment.

Property investment is the value of road and equipment as shown by the books of the railways, including materials, supplies and cash. The net railway operating income is what is left after the payment of operating expenses, taxes and equipment rentals but before interest and other fixed charges are paid.

This compilation as to earnings in July is based on reports from 185 Class I railroads representing a total mileage of 239,994 miles.

Gross operating revenues for July amounted to $512,953,453 compared with $509,678,377 in July, 1927, an increase of six-tenths of one per cent. Operating expenses in July totaled $375,489,900 compared with $383,913,386 in the same month in 1927 or a decrease of 2.2 per cent.

Class I railroads paid $32,592,568 in taxes in July, an increase of 4.1 per cent over the same month in 1927. This brought the total tax bill of the Class I railroads for the first seven months in 1928 to $214,465,224, a decrease of $2,216,979 or one per cent below the corresponding period in 1927.

Twenty-one Class I railroads operated at a loss in July of which six were in the eastern, five in the southern and ten in the western district.

Class I railroads for the first seven months in 1928 had a net railway operating income amounting to $557,251,433, which was at the annual rate of return of 4.36 per cent on the property investment. During the corresponding period of the preceding year, their net railway operating income amounted to $558,133,495 or 4.47 per cent on their property investment.

Gross operating revenues for the first seven months in 1928 amounted to $3,419,809,817 compared with $3,534,617,731 during the corresponding period in 1927 or a decrease of 3.2 per cent. Operating expenses for the first seven months of 1928 totaled $2,581,155,648 compared with $2,694,463,568 during the corresponding period the year before or a decrease of 4.2 per cent.

The net railway operating income of the Class I railroads in the eastern district during the first seven months in 1928 totaled $292,116,742, which was at the annual rate of return of 4.91 per cent on their property investment. For the same period in 1927 their net railway operating income was $308,325,034 or 5.30 per cent on the property investment. Gross operating revenues of the Class I railroads in the eastern district for the first seven months in 1928 totaled $1,696,063,092, a decrease of 5.4 per cent under the corresponding period the year before while operating expenses totaled $1,270,147,987, a decrease of 6 per cent under the same period in 1927.

Class I railroads in the eastern district for the month of July had a net railway operating income of $48,479,077 compared with $46,617,961 in July, 1927.

Class I railroads in the southern district for the first seven months in 1928 had a net railway operating income of $70,670,890, which was at the annual rate of return of 4.03 per cent on their property investment. For the same period in 1927 their net railway operating income amounted to $78,390,228, which was at the annual rate of return of 4.60 per cent. Gross operating revenues of the Class I railroads in the southern district for the first seven months in 1928 amounted to $448,130,367, a decrease of 6.6 per cent under the same period the year before, while operating expenses totaled $343,983,580, a decrease of 6.1 per cent.

The net operating income of the Class

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I railroads in the southern district in July totaled $8,263,091, while in the same month in 1927 it was $9,177,338.

Class I railroads in the western district for the first seven months in 1928 had a net railway operating income of $194,463,801, which was at the annual rate of return of 3.82 per cent on their property investment. For the first seven months in 1927, the railroads in that district had a net railway operating income of $171,418,233, which was at the annual rate of return of 3.45 per cent on their property investment. Gross operating revenues of the Class I railroads in the western district for the first seven months this year amounted to $1,275,616,358, an increase of 1.1 per cent above the same period last year, while operating expenses totaled $967,024,081, a decrease of one per cent compared with the first seven months the year before.

For July, the net railway operating income of the Class I railroads in the western district amounted to $38,484,099. The net railway operating income of the same roads in July, 1927, totaled $29,339,854.

Cars Needing Repairs

Class I railroads on August 15 had 154,055 freight cars in need of repair or 6.9 per cent of the number on line, according to reports filed by the carriers with the car service division of the American Railway Association.

This was an increase of 2,188 cars over the number reported on August 1, at which time there were 151,867 or 6.7 per cent.

Freight cars in need of heavy repairs on August 15 totaled 109,215 or 4.9 per cent, an increase of 794 compared with August 1, while freight cars in need of light repairs totaled 44,840 or 2 per cent, an increase of 1,394 compared with August 1.

New Line in Bolivia

Construction has just begun on the first part of the Bolivian government's $35,000,000 railroad project, under contract with Kennedy & Carey, New York. The first 100 miles of track between Cochabamba and Santa Cruz, a total distance of 350 miles over extremely broken country, will be completed in two years.

The new railroad will be of national importance to Bolivia. At present the easiest natural access to its rich eastern districts lies through Brazil and Paraguay, while the industrial and commercial centers of Bolivia, around La Paz, can be reached from Santa Cruz only by difficult mule-train marches. The new railroad will provide the first direct mail contact between the rest of Bolivia and the department of Santa Cruz, with its 200,000 inhabitants and 140,000 square miles of fertile land.

The Santa Cruz district lies low on the eastern slope of the Andes, which rises westward to more than 12,000 feet elevation. The gradual ascent provides marked changes in climate, from wholly tropical to temperate, producing varied agricultural products. The Santa Cruz district produces sugar cane, mahogany, cotton, coffee and rubber and includes cattle grazing land. Petroleum deposits have been found in it and it also contains salt, gold, tin, coal and copper mines.

Booklet for Employes

Employes, entering the service of the Rock Island Lines, hereafter are to have a booklet containing information about how that railroad is organized; an explanation of the policy of the management toward employes and the public; an outline of the advantages of railway service; what is expected of the employe in his or her job; and the opportunities presented in railway employment.

The booklet, which is in the nature of a railway "textbook" for those entering railroad employment for the first time, has been prepared under the direction of Hal S. Ray, director of personnel and public relations of the Rock Island Lines in Chicago and is entitled "The Rock Island and You." The material contained in the booklet is being run serially in the Rock Island (Employes) Magazine as information for the older employes as well.

Railway Construction

Tracks & Yards

ALABAMA.—The Birmingham, Selma & Mobile has asked the I. C. C. for authority to construct a 10-mile extension to its main line in Perry county and a 22-mile branch line into Perry and Hale counties, to serve agricultural and timber lands.

CALIFORNIA.—The Southern Pacific has asked permission to construct six miles of new line between Kerman and Biola.

—The Southern Pacific has authority from the I. C. C. to construct an extension from Martinez to Goodyear. The new line will extend from Martinez to Suisun Point, where a bridge will be erected across the straits to Army Point. From there the line will be continued to a connection with the Southern Pacific's present line at Goodyear. Total cost of construction is estimated at $11,548,500.

—The Turlock & Eastern Co. has been formed to construct a five-mile line between Turlock and Cortez, on the Santa Fe, at a cost of about $250,000.

FLORIDA.—The Atlantic Coast Line has permission to build an extension from Clewiston to a point 8.4 miles southeast at an estimated cost of $172,785.

—The Florida East Coast has asked permission to construct ten miles of new line from Chosen to the west bank of the Miami Canal.

KENTUCKY.—The Southern has let a contract to the Brooks-Callaway Co., Atlanta, for line and grade revision of the Cincinnati, New Orleans & Texas Pacific, between High Bridge and Danville. It is reported the work will cost about a million dollars.

MISSOURI.—The List Construction Co., Kansas City, has the contract from the Kansas City Southern for grading and constructing bridges for the 13-mile line between Grandview and Leeds to give the company its own entrance into Kansas City over a line which will have a grade of not over five per cent. Plans call for a separation of grades over all of the 25 highways crossed by the line. Track laying and ballasting will be done by company forces. The cost of the entire project is estimated at $3,000,000.

NEW JERSEY.—A contract for the construction of a pass under its four tracks at the crossing of the state highway near Rutherford has been let by the Erie to the Arthur McMullen Co.

NEW YORK.—F. H. Clement & Co., Bethlehem, Pa., has a contract from the Delaware & Hudson to eliminate a grade crossing at Delmar at a cost of about $173,000.

—A $2,500,000 expenditure is planned by the New York Central on the yards at Mott Haven to facilitate passenger traffic handling, to include construction of a five-story building for yard forces of the Pullman Co. and the New York Central's commissary department. Bids are being sought for the initial work of constructing a retaining wall and a new milk platform and driveways with access from Park avenue by way of a new bridge and viaduct across the Harlem division tracks. New track arrange-

ments will be installed between here and the Grand Central Terminal to facilitate operation.

OKLAHOMA.—The Panhandle Construction Co., Oklahoma City, has a contract from the Beaver Meade & Englewood for a 20-mile extension from Hooker westward to cost about $445,000.

OREGON.—The Edward Hines Western Pine Co., has asked the I. C. C. for permission to build a new line or acquire an existing line between Burns and Seneca, 50 miles.

PENNSYLVANIA.—The Pittsburgh & West Virginia has awarded a contract to Winston Brothers, Minneapolis, for a 39-mile extension from Cochran's Mill to Connellsville at a cost of about $12,800,000.

—The Baltimore & Ohio has purchased land in the produce district of Pittsburgh equivalent to about two city blocks with the intention of enlarging its yards.

—The Bellefonte Central has permission to construct a six-mile extension from Struble to a connection with the Fairbrook branch of the Pennsylvania in Center county, to acquire and operate the two miles of the Fairbrook branch of the Pennsylvania between Stover and Fairbrook and to use the terminal facilities at Tyrone.

TEXAS.—The Texas-New Mexico has authority from the I. C. C. to build a 23-mile connection with the Texas & Pacific at Monahans, north and northwest to the Texas-New Mexico state line, with the provision that the proposed route be changed to serve the town of Wink.

VIRGINIA.—The Big Sandy & Cumberland, a subsidiary of the Norfolk & Western, has permission to construct 14 miles of line from Hurley to the east bank of the Levisa Fork of the Big Sandy River and to reconstruct and operate a narrow gauge industrial track from Grundy 13 miles into Buchanan county.

Buildings & Structures

ILLINOIS.—Chicago. The Santa Fe has awarded a contract to Jerome A. Moss, Chicago, for an $80,000 subway at Cicero avenue.

INDIANA.—Fort Wayne. Buesching & Hagerman Co., Fort Wayne, has a contract from the Pennsylvania for a produce terminal to cost about $3,000,000.

KENTUCKY.—Madisonville. The Louisville & Nashville has submitted tentative plans to the Chamber of Commerce here for a two-story freight and passenger station to cost about $75,000.

MISSOURI.—Nettleton. The Missouri Pacific is planning a locomotive repair shop here to cost about $100,000.

—St. Louis. United Engineers & Constructors, Inc., has a contract from the Wabash for a passenger station at Delmar boulevard and Hodiamont avenue to cost $350,000.

MONTANA.—Laurel. Plans for a shop here for the repair of steel cars are being completed by the Northern Pacific. Estimated expenditure is $160,000.

NEW JERSEY.—Jersey City. The Erie has awarded a contract to Allan N. Spooner & Son, Inc., New York, to erect a mail building here.

—Trenton. The Pennsylvania has awarded a contract to Newton A. K. Bugbie & Co., Inc., Trenton, for a bridge, freight houses, platforms and shelters in connection with a new freight house here. The cost is estimated at $310,000.

NEW YORK.—New York. The New York Central has let the contract for the underground passage between its office building on Lexington avenue and the Grand Central Terminal to James Stewart & Co. Estimated cost is $125,000.

PENNSYLVANIA.—Bradford. Roberts & Schaefer, Chicago, has a contract from the Buffalo, Rochester & Pittsburgh, for an "N. & W." type electric coaling station.

SPRINGS

AMERICAN STEEL FOUNDRIES

NEW YORK CHICAGO ST. LOUIS

—**Pittsburgh.** The Pennsylvania has awarded a contract to the Jones & Laughlin Steel Corpn. for steel work to cost about $65,000, in connection with the auction house at the new produce terminal development.

RHODE ISLAND.—Providence. The Turner Construction Co. has a contract from the New Haven for a 965 by 60 ft. warehouse with a two-story portion at one end, to cost about $500,000. It will be used by the Providence Produce Warehouse Co.

VERMONT. — White River Junction. Roberts & Schaefer, Chicago, has a contract from the Central Vermont for a 300-ton capacity, 3-track, reinforced concrete Rands shallow pit automatic coaling and sanding plant and a "N. & W." type cinder plant for immediate erection.

Locomotive Orders

Locomotives placed in service by Class 1 roads during the first seven months this year totaled 881, a decrease of 314 compared with the same period last year and a decrease of 407 compared with the same period in 1926. Locomotives on order August 1, this year, totaled 73 compared with 209 on the same date last year and 517 on the same date in 1926.

The largest order for motive power placed so far this year has been awarded by the New York Central to the American Locomotive Co. The order calls for 55 locomotives and five additional tenders. Thirty of the locomotives will be of the Hudson type for passenger service, 25 on the New York Central and five on the Michigan Central; 25 will be of the Mohawk heavy type for freight service on the Big Four. Other orders are as follows: National Railways of Mexico, two 4-6-2 type and six Mallet type placed with American; Texas Co., one switcher with Baldwin; Kwang Tung Yueh Han, Canton, China, two 4-8-2 type with Baldwin; Mogyana Railway, Brazil, two 4-6-0 type with American; Solvay Process Co., Syracuse, two 0-4-0 tank locomotives with American; Erie, one 300-horsepower oil electric locomotive with Ingersoll-Rand Co., General Electric Co. and American Locomotive Co. The Pennsylvania is building ten G5 4-6-0 type passenger locomotives for service on the Long Island at its Altoona shops.

The Great Northern is inquiring for ten Mallet type; Belt Railway of Chicago, ten switchers; Algoma Central, two 2-10-2 type and the Hydro-Electric Railways, Toronto, is expected to be in the market for one electric locomotive.

Locomotives in need of repair on August 15 totaled 8,827 or 14.9 per cent of the number on line, 8.3 per cent in need of classified repairs and 6.6 per cent in need of running repairs. This was an increase of 517 locomotives compared with the number on August 1. Serviceable locomotives in storage August 15 totaled 6,712 compared with 6,982 on August 1.

Passenger Car Orders

Orders placed with J. G. Brill Co. since the August issue of Transportation include the following: Central of Georgia, one passenger and baggage gasoline rail motor car; Louisiana & Arkansas, one passenger and baggage gasoline rail motor car; Southern Pacific, one passenger and baggage gas electric motor car. The Southern Pacific also ordered four gas electric cars, three with Electro-Motive Co. units, two of the bodies to be built by Bethelehem Steel Co. and one by Pullman Car & Mfg. Corpn., the fourth with a Sterling Westinghouse unit to be built by Standard Steel Car Co. The Milwaukee Electric Railway & Light Co. ordered ten new city cars and is remodeling 40 cars into one-man safety cars, eight cars for suburban rapid transit service, and reconstructing 34 old cars into 17 three-truck trains.

The Southern Pacific is inquiring for 25 dining cars; Chesapeake & Ohio, two dining cars; Reading Co., two combination passenger and baggage gas electric cars, three combination passenger, baggage and mail gas electric cars and three trailers; Omaha, six gas electric cars in addition to the four mentioned in our August issue; Bangor & Aroostook, two combination baggage and mail cars; Alaska Railroad, two second hand or new passenger coaches. The Detroit Dept. of Street Railways is receiving bids for 50 or 100 Peter Witt type street cars, and the Calgary Municipal Railway is expected to order two one-man cars.

Freight Car Orders

Here is some cheer for the freight car builders, who as an industry have been suffering from a very slack market. The A.R.A. has passed a ruling that, effective January 1, 1931, no cars of all-wooden construction will be accepted in interchange and after January 1, 1934, no car with an all-wooden underframe equipped with metal draft arms will be accepted. Of course, there is a large number of cars that can be reconstructed so as to comply with the new rulings, but the question of economy will have some bearing on this question as it is doubtful how many of the existing wooden cars can profitably be reconstructed. Some authorities say this ruling will require the construction of at least 300,000 new cars within the next two years, and others that the effect of these rulings and normal increases in traffic, retirements, etc., will require the construction of at least 250,000 cars a year for the next few years.

According to reports filed with the A.R.A. freight cars placed in service in the first seven months this year by Class 1 railroads totaled 35,854, a decrease of 9,289 compared with the corresponding period last year and a decrease of 30,404 compared with the same period in 1926. Freight cars installed in July totaled 6,137 compared with 7,102 in July last year. The railroads had 14,830 freight cars on order August 1 compared with 19,344 on the same date last year and 29,102 on the same date in 1926.

The Great Northern Equipment Co. is inquiring for 500 box cars, 500 flat cars, 500 coal cars, 1000 all steel ore cars and 2000 underframes for box cars; Illinois Traction System, from 100 to 200 composite gondola cars; Sanitary District of Chicago, 16 air dump cars of 30 cu. yd. capacity and four air dump cars of 20 cu. yd. capacity; American Railroad of Porto Rico, 100 cane cars; Cuyamel Fruit Co., New Orleans, 75 banana cars; Anglo-Mexican Petroleum Co., Ltd., eight tank cars; Erie, five depressed center flat cars; Norfolk & Portsmouth Belt Line, two underframes for caboose cars. The Illinois Terminal Co. contemplates buying 100 box cars.

Orders placed since the August issue include the following: Missouri Pacific, 100 automobile furniture cars with American Car & Foundry Co.; Midland Utilities Co. of Indiana for the Chicago, South Shore & South Bend, two caboose cars with American Car & Foundry Co.; South Porto Rico Sugar Co., 10 cane cars and 20 flat cars with Magor Car Corpn.; International Railways of Central America, 25 banana cars with Magor Car Corpn.; Wabash, ten hopper cars with American Car & Foundry Co.; Barrett Co., 15 tank cars with General American Tank Car Corpn., and 15 tank cars with American Car & Foundry Co.; North American Car Co., 100 underframes with Pressed Steel Car Co.; Cities Service Co., ten tank cars with American Car & Foundry Co. The Chesapeake & Ohio has awarded contracts for the building of 500 steel hopper bottom gondola car bodies on second hand trucks, 200 cars to the American Car & Foundry Co. and 300 cars to the Richmond Car Works, Inc.

Bus and Truck Orders

Orders and deliveries made since the August issue of this magazine include the following: Eastern Massachusetts

Street Railway, Boston, five 29-passenger A.C.F. de luxe urban coaches; Boston & Maine Transportation Co., two Studebaker parlor coaches; Community Traction Co., Toledo, ten Twin Coach urban coaches; Hamilton-Oxford Bus Line Co., Hamilton, Ohio, one Twin Coach parlor coach; Seattle Municipal Railway, Seattle, two 21-passenger Studebaker street car type buses; Louisville Railway, two de luxe inter-city buses from White Co. and Bender Body Co.; Great Lakes Stages, Ltd., Windsor, Ont., two Twin Coach parlor coaches; Detroit - Toledo - Cleveland Bus Co., Cleveland, two Twin Coach parlor coaches; United Electric Railway Co., Providence, 12 Twin Coach urban coaches; Pony Express Lines of Detroit, eight Twin Coach parlor coaches; Milwaukee Electric Railway & Light Co., seven new buses. The Milwaukee Electric Railway & Light Co. is rebuilding 15 double-deck buses into one man operated buses.

Changes in Personnel

Executive & Operative

Dr. John R. Nilsson has been appointed chief surgeon of the Union Pacific to succeed **Dr. A. F. Jonas,** retired.

C. A. Bache, assistant to the vice president and general manager of the Beaver, Meade & Englewood, has been appointed assistant general manager and traffic manager.

Finley J. Shepard, vice president of the Missouri Pacific, and **Arthur W. Loasby,** president of the Equitable Trust Co., have been elected directors of the Denver & Rio Grande to succeed **John J. Raskob**, resigned, and **Alvin W. Krech**, deceased.

N. A. Williams has been appointed general superintendent of the Saratoga & Encampment Valley, with headquarters at Cheyenne.

W. R. Smith, general superintendent of the central and western districts of the Great Northern, with headquarters at Great Falls, has been appointed assistant general manager, with headquarters at the same point, succeeding **F. S. Elliott,** resigned. **F. J. Gavin,** general superintendent of the Lake and eastern districts, with headquarters at Duluth, has been appointed assistant general manager.

J. D. Healy, assistant superintendent of the Calgary division of the Canadian National, with headquarters at Mirror, Alta., has been transferred to the Edmonton division, with headquarters at Edmonton, Alta., and will be succeeded at Mirror by **Sherman Smith,** assistant superintendent of the Edson division, with headquarters at Edson, Alta. Sherman Smith will be succeeded by **W. Smith.**

W. S. McAbee, general superintendent of the Union Railroad, with headquarters at East Pittsburgh, has been elected vice president also.

John J. Raskob has resigned from the executive committee of the Missouri Pacific and as one of the members of the special committee appointed to work out a probable dividend policy. He has also resigned as a director of the Gulf Coast and the Texas & Pacific. The only position he retains in the Missouri Pacific companies is a directorship in Missouri Pacific proper.

The Spokane, Portland & Seattle announces the promotion of **W. H. Marsh,** principal assistant engineer with headquarters at Portland, to assistant to the president with headquarters at the same point.

J. H. Marcy, superintendent of dining service of the Boston & Albany, has retired and will be succeeded by **A. E. Yarlott,** assistant superintendent of dining service with headquarters at Boston.

The Algoma Eastern announces that **Robert Dodd** has been appointed president and **W. C. Franz,** vice president, has been appointed general manager also, with headquarters at Sault Ste. Marie, Ont.

J. P. Cowley, acting division superintendent of the Gulf, Colorado & Santa Fe, with headquarters at Galveston, has been named assistant to the general manager, with the same headquarters.

L. P. Hopkins, trainmaster, coast division, of the Southern Pacific, with headquarters at Watsonville Junction, Cal., has been transferred to San Francisco, to succeed **A. A. Lowe,** assigned to other duties. **H. R. Hughes** has been appointed trainmaster to succeed Mr. Hopkins at Watsonville Junction. **C. L. Zwick,** trainmaster, Rio Grande division, headquarters Lordsburg, N. M., has been transferred to the Los Angeles division, headquarters Colton, to succeed Mr. Hughes. **J. M. Trefren,** trainmaster, Tucson division, headquarters at Yuma, has been transferred to the Rio Grande division to succeed Mr. Zwick. **G. A. Bays** has been appointed to succeed Mr. Trefren.

Thomas J. Regan, trainmaster of the Northern Pacific at Glendive, Mont., has been transferred to Missoula. **Edgar J. Brierly,** trainmaster at Dilworth, Mont., will succeed Mr. Regan at Glendive. **Edwin H. Briley** has been ap-

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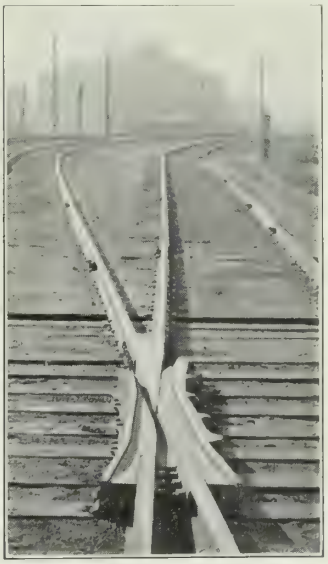

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pointed to succeed Mr. Brierly at Dilworth.

F. L. Davis, trainmaster of the Logansport division of the Pennsylvania, headquarters at Logansport, Ind., has been appointed service inspector with headquarters at Chicago and will be succeeded at Logansport by **J. B. Hayes**, assistant trainmaster, eastern division.

Financial and Legal

L. D. McPherson, valuation attorney for the Wabash for the past four years, resigned September 1 to enter the general practice of law in Chicago. This closes a railroad career of over 25 years. Mr. McPherson began railroad work as attorney on the Southern Railway in Georgia in 1901. He was the first appointee of the bureau of valuation of the I.C.C. to evaluate the railroad lands under the Federal Valuation Act. Since 1924 he has been exclusively engaged in preparing and presenting to the commission the valuation of the Wabash and its affiliated lines. Mr. McPherson is the compiler of 14,000 pages in 28 volumes on federal valuation of steam railroads in the United States, 19 volumes of which are a general digest and index of proceedings in substantially all railway valuations in the United States wherein carriers made protest to the commission's valuations.

The New York Central announces the retirement of **F. E. Briggs**, auditor of coal and coke accounts, with headquarters at New York, after 44 years' service. He is succeeded by **E. F. Haubold**, auditor of freight accounts at Cleveland. Mr. Haubold is succeeded by **T. W. Meyer**, general rate accountant at Cleveland.

W. L. Grubbs, secretary to the general solicitor of the Lousville & Nashville at Louisville, has been named commerce attorney, with headquarters as before.

Victor F. Steinberg, paymaster of the Terminal Railroad Assn. of St. Louis, has been named treasurer to succeed his father, **George H. Steinberg**, deceased.

J. W. Bourscheidt has been appointed auditor of the St. Louis Southwestern with headquarters at St. Louis.

Thomas H. Seay, auditor for the Southern, with headquarters at Cincinnati, has been named general auditor with headquarters at Washington, to succeed **J. B. Duke**, deceased. **W. H. Luckett**, assistant auditor at Washington, has been appointed assistant general auditor with the same headquarters.

Traffic

G. R. Webster, assistant general agent of the Milwaukee at Seattle, has been appointed general agent at Portland, Ore. **R. Jackson**, traveling freight and passenger agent at Seattle, succeeds Mr. Webster.

L. H. Mussman, general agent of the Big Four at Chicago has been named division freight agent, with headquarters at Columbus to succeed **W. G. Pennell**, deceased. **A. F. Haverkamp** succeeds Mr. Mussman at Chicago.

A. L. P. Scully has resigned as commercial agent of the Chicago & Eastern Illinois, with headquarters at New Orleans, and will be succeeded by **George H. Nourse**, commercial agent at Dallas. **Webster A. Myatt** succeeds Mr. Nourse.

The Canadian Pacific announces that **J. C. Patteson**, assistant general agent in the steamship department at New York, has been named general agent of the passenger department, railway and steamship, with headquarters at Philadelphia. **J. Ernest Parker**, general agent of the steamship passenger department with headquarters at Toronto, has resigned and will be succeeded by **J. B. Mackay**, assistant general agent.

D. W. Forrest, traveling passenger agent of the Chesapeake & Ohio, headquarters at New York, has resigned and will be succeeded by **W. R. Rhodes**, traveling passenger agent with headquarters in Louisville. **H. C. Green**, traveling passenger agent with headquarters at Huntington, will be succeeded by **John R. Cavan**. **W. L. Bailes**, traveling freight agent, with headquarters at Cincinnati, has been appointed commercial agent with headquarters at Atlanta to succeed **D. H. McCalla**, transferred.

A. T. Stewart has been appointed assistant general freight agent of the Missouri Pacific, with headquarters at St. Louis.

S. A. Volkman, general agent of the Great Northern with headquarters at Minneapolis, has been appointed assistant general freight agent with the same headquarters.

C. S. Cox, traveling freight agent of the Kansas City Southern, with headquarters at St. Louis, has been appointed coal traffic agent, with headquarters at Kansas City and will have supervision over coal traffic. **F. R. Lipscomb**, traveling freight agent, Joplin, has been transferred to the St. Louis territory to succeed Mr. Cox. **F. W. Kershner**, soliciting freight agent at Joplin, has been appointed traveling freight agent with headquarters as before to succeed Mr. Lipscomb. **J. T. Carrigues** will succeed Mr. Kershner.

H. G. Dow, assistant general freight agent of the Great Northern, with headquarters at New York, has been appointed eastern traffic manager with headquarters as before.

R. A. Pendergrass has been appointed traveling freight and passenger agent of the St. Louis Southwestern, with headquarters at Nashville.

The Southern Pacific of Mexico announces that **H. Lawton**, traffic manager, with headquarters at Guadalajara, has retired and will be succeeded by **L. G. Hoff**, general freight and passenger agent, with headquarters at Guadalajara. Mr. Hoff will be succeeded by **J. Alarcon**, assistant general freight agent.

R. J. Brown, assistant general freight agent of the Southern, with headquarters at Atlanta, has been appointed general freight agent, with the same headquarters to succeed **J. W. Bray**, resigned. **C. D. Thomas**, assistant general freight agent at Cincinnati, has been transferred to Atlanta to succeed Mr. Brown and will be succeeded at Cincinnati by **C. B. Walker**.

Mechanical

H. A. Currie, assistant electrical engineer, New York Central, with headquarters at New York, has been appointed electrical engineer and will perform the duties of the chief engineer of electric traction, this position having been abolished. **A. J. Clarkson** has been appointed superintendent of electric equipment to succeed **J. A. Carmody**, resigned. **F. E. Edwards** has been appointed assistant superintendent of electric equipment.

Harry B. Bowen, assistant superintendent of motive power on the Canadian Pacific, with headquarters at Winnipeg, has been appointed chief of motive power and rolling stock, with headquarters at Montreal to succeed **C. H. Temple**, resigned after 42 years' service.

J. Driscoll, master mechanic on the Erie, with headquarters at Little Ferry, N. J., has been appointed master mechanic at Secaucus, N. J., succeeding **L. R. Laizure**.

J. W. Highleyman, assistant superintendent of motive power and machinery, Union Pacific, with headquarters at Omaha, has been appointed superintendent of motive power and machinery of the Oregon Short Line with headquarters at Pocatello, Ida., succeeding **A. C. Hinckley**, retired. Mr. Highleyman will be succeeded at Omaha by **J. W. Burnett**, master mechanic of the Wyoming division with headquarters at Cheyenne. **John Gogerty**, master mechanic at Green River will succeed Mr. Burnett at Cheyenne.

The Louisville & Nashville announces that **C. J. Bodemer**, acting superintendent of machinery, with headquarters at Louisville, has been appointed superin-

tendent of machinery with headquarters as before.

Civil

Bernard Blum, engineer maintenance of way for the lines east of Paradise of the Northern Pacific, has been appointed chief engineer to succeed **H. E. Stevens,** promoted to vice president in charge of operation, and his former title has been abolished. Mr. Blum has been with the Northern Pacific 22 years, having started as assistant engineer in charge of construction of a freight terminal yard at Laurel, Mont., in 1907. In 1919 he was appointed engineer maintenance of way, the position from which he is now promoted. Mr. Blum is a graduate of the Massachusetts Institute of Technology in Boston in the department of civil engineering.

P. E. Thian, valuation engineer on the Northern Pacific, who has been in railroad work since his graduation from Georgetown University, Washington, has been appointed to the newly created position of consulting engineer of the Northern Pacific and the Northwestern Improvement Co. The title of **A. F. Stotler,** assistant chief engineer and engineer maintenance of way, lines west of Paradise with headquarters at Seattle, has been changed to assistant chief engineer. **J. T. Derrig,** district engineer at St. Paul, will be assistant to chief engineer. **H. F. Brown,** assistant district engineer at St. Paul, has been appointed

Bernard Blum

district engineer of lines east of Mandan, succeeding Mr. Derrig. **A. C. Terrell** has been named valuation engineer to succeed Mr. Thian.

J. C. Patterson, superintendent of maintenance on the Erie, with headquarters at New York, has been appointed chief engineer of maintenance of way, with the same headquarters.

E. Bennett, engineer maintenance of way of the Southern, with headquarters at Macon, has been transferred to the same position at Knoxsville to succeed **J. A. Killian,** deceased. The office of engineer maintenance of way at Charlotte, N. C., has been abolished and the jurisdictions of engineers maintenance of way at Danville and Knoxville have been extended to include the Piedmont and the Memphis and Charleston districts, respectively.

R. L. Woodling, signal supervisor of the Santa Fe, with headquarters at Fresno, has been named assistant signal engineer, northern district, headquarters at La Junta, Colo., to succeed **A. M. Staley,** assigned to other duties.

James S. Thorp, assistant electrical engineer of the Illinois Central, Chicago Terminal Improvements, has been appointed electrical traction engineer of the Lackawanna with headquarters at Hoboken, N. J.

W. H. Stillwell, acting signal engineer of the Louisville & Nashville, with headquarters at Louisville, has been appointed signal engineer.

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Completely rebuilding large numbers of steel cars in record time is an achievement that Ralston Steel Car Company has repeated time and time again.

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RALSTON STEEL CAR CO.
COLUMBUS, OHIO

Obituary

F. E. Patterson, director, secretary and treasurer of the American Steel Foundries, died August 12 at Chicago, aged 69. He was also director of the Griffin Wheel Co., the Damascus Brake Beam Co. and the Galesburg Malleable Castings Co.

William A. Parker, purchasing agent of the Bessemer & Lake Erie and the Union Railroad, with headquarters at Pittsburgh, died August 6 at Hesston, Pa.

W. T. Spencer, superintendent of the Boston division of the New Haven, died August 19 at his home in Brookline, Mass.

Donald C. Davis, mechanical engineer of the Gould Coupler Co., died July 31 at his home in Buffalo, aged 50.

B. F. James, secretary and treasurer of the Colorado & Southern, died at his home in Denver, August 21, aged 68, following a stroke of paralysis suffered three weeks before his death.

James Bowron, chairman of the board of directors of the Gulf States Steel Corpn., died at Birmingham, August 25.

Parker B. Stofer, assistant comptroller of the Southern Pacific, died at his home in Norwich, N. Y., August 12, aged 51.

H. T. Dick, general solicitor of the Chicago & Eastern Illinois, with headquarters at Chicago, died there August 11.

Supply Trade Notes

A. K. Hohmeyer, representative of the **Southern Wheel Co.**, headquarters at Chicago, has resigned and will be succeeded by **Harold S. Russell.**

The **Paige & Jones Chemical Co.**, New York and Hammond, Ind., has purchased from the **American Water Softener Co.**, Philadelphia, patent rights and good-will pertaining to the lime soda water softening business of that company and will manufacture and sell this type of water softener. **W. T. Runcie**, sales manager, and **H. C. Waugh**, engineer, of the American Co., have joined the organization of the Paige & Jones Co.

Paul Mackall has been appointed vice president of the **Bethlehem Steel Corpn.** in charge of general sales, to succeed **E. S. Kinsley**, who takes over less active duties.

J. J. Voigt, Jr., has formed the **National Accessories Co.**, 214 Harrison building, Philadelphia, to deal in railway signal and electrical accessories.

D. J. McCarthy, chief engineer of the **Chicago Railway Signal & Supply Co.**, Chicago, has been appointed vice president and general sales manager to succeed **C. O. Poor**, resigned. **Arthur C. Dunne**, resident manager at Chicago, has been appointed western sales manager, with headquarters at Chicago.

The **Texas Co.** has appointed **J. L. Lavalle** assistant manager of the railway sales division, with headquarters in New York.

C. J. Olmstead, western manager of the **Westinghouse Air Brake Co.**, with headquarters at Chicago, has been named assistant to the vice president,

J. A. Carmody

and will be succeeded as western manager by **C. D. Foltz**, assistant western manager. **A. K. Hohmeyer** succeeds Mr. Foltz.

J. A. Carmody, superintendent of electrical equipment of the New York Central, has resigned to join the **Eureka Copper Products Corpn.**, North East, Penn., as district representative of the eastern district. The New York office of the Eureka Copper Products Corpn. is in the Grand Central Terminal.

The **American Brown Boveri Electric Corpn.** has purchased the transformer division of the **Packard Electric Co.**, Warren, Ohio.

A. W. MacLean has been appointed a special representative of the **MacLean-Fogg Lock Nut Co.**, Chicago.

A. F. Morris, vice president and sales manager of the **Morgan Engineering Co., Alliance, Ohio**, has been elected president. **S. F. Kallenbaugh**, assistant sales manager, will succeed Mr. Morris as sales manager and will be succeeded by **T. J. Muir.**

Max Epstein, president of the **General American Tank Car Corpn.**, Chicago, has been elected chairman of the board. He will be succeeded by **Elias Mayer**, general counsel and vice president.

J. E. Brown, eastern sales manager of the **Central Valve Manufacturing Co.**, Chicago, with headquarters at New York, has been elected vice president, with headquarters in the Railway Exchange building, Chicago.

The **Baker-Raulang Co.**, Cleveland, announces the appointment of **L. O. Cameron**, Washington, as special railroad representative for the central Atlantic district. Mr. Cameron has been connected with the railway supply business for many years, and has a wide acquaintanceship among railway men.

Pitt P. Hand, formerly manager of public relations of the New York Central, has been appointed to a similar position with the Richfield Oil Company of California, with headquarters at Los Angeles.

The **Universal Crane Co.** has removed its general sales office from Cleveland to Lorain, Ohio.

The **National Electrical Manufacturers' Association** of New York will hold its fall meeting during the week of October 29 at Briarcliff Lodge, Briarcliff, N. Y.

L. S. Walker has been appointed eastern manager of the **P. & M. Co.**, with headquarters at New York, to succeed **F. N. Baylis. Max K. Ruppert** has been appointed assistant eastern manager.

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The Monthly Magazine of the Transportation Industry

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Vol. III October 1928 No. 4

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OVER sixty American and Canadian railroads already have learned from experience that cars equipped with Hyatt journal boxes maintain schedules . . . reduce operating costs . . . and, above all, increase passenger comfort and promote public good will.

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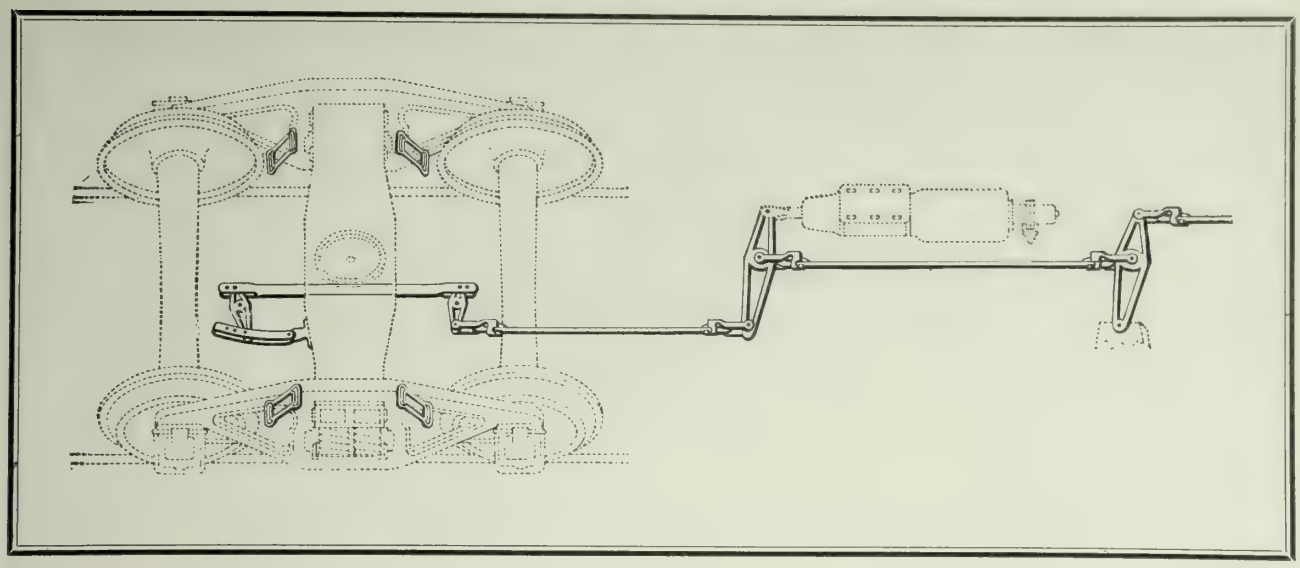

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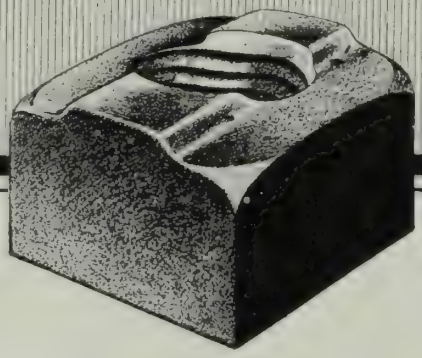
Used as a unit, they prevent excessive slack accumulation due to pin hole wear. They avoid undue piston travel and the resulting impact when the brakes are applied.

These qualities, together with a reduction of 94 pounds in weight per car set, give to Schaefer Foundation Brake Details unusual economy in maintenance, fewer replacements and greater economy and safety of operation.



"Cheaper" Seldom Means "Better"

"Better" Often Means "Cheaper"

TOO much stress on the claim, "Our product is *cheaper,*" is a danger signal. The experienced man knows how seldom "cheaper" means "better"; he knows that more often the *better* product is the cheaper in the long run.

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Transportation

(Reg. U. S. Patent Office)

The Monthly Magazine of the Transportation Industry

OCTOBER, 1928

VOLUME THREE NUMBER FOUR

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CHICKENS AND DUCKS FOR THE DINERS, *Katherine Prevost*

LITTLE STORIES ABOUT BIG MEN

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DO you realize that there are locomotives still in service that were new when this car was built 21 years ago?

How would you like to take this car on an "Ideal" Tour instead of your Rolls-Royce?

LIMA LOCOMOTIVE WORKS
Incorporated

The German Railways *and their* Operations

Progress in 25 Years on the German National Railways. From the Old Steam Locomotive to Modern Electric Equipment.

Progress Since the World War

By

Dr. B. R. Witte

Director,

German National Railways

THE GERMAN railroads were subjected to fundamental changes in organization and financial structure after the war. The constitution of the new republic provided for railroads owned and operated by the Reich (federal government). By taking over the several former regional state systems of Prussia, Bavaria, Saxonia etc. into one federal unit, an old plan was realized, devised a half a century ago by Bismarck who aspired to keep together the various German states with iron rails. But at that time the opposition was too strong from states unwilling to give up their financial backbones. Then, too, the railroads did very well in pre-war times, pouring millions and millions of marks into the bags of the state treasuries for general public purposes.

The Deutsche Reichsbahn, as a governmental unit, struggled for four years building up road and equipment worn out and diminished by the war and the peace conditions, and leading the employes back to the old discipline in a new democratic spirit. But financial success was denied; the inflation of the mark swept away the earnings and the railroad treasurer faced a terrible situation.

Dr. B. R. Witte

The new form of the German railroads was shaped by the Dawes plan. As one of the most valuable assets of the German people the railroads now have to serve as an instrument of reparation. The Dawes committee with the assistance of a British and French expert, Sir William Acworth and M. Gaston Leverve, investigated and found the railroads a magnificent property, their equipment "modern and fully up to the level of the latest improvements in railway technique." The value was estimated at 6½ billion dollars. A company, the German National Railway Company, was established with 3¼ billion dollars in common shares, held by the German government, ½ billion dollars in preferred shares, of which 75 per cent were to be sold to finance capital expenditure and 25 per cent to be sold for the benefit of the German budget, and 2¾ billion dollars of first mortgage bonds, guaranteed by government and issued to a trustee representing Germany's reparation creditors.

The Harbor at Hamburg Showing the Excellent Modern Facilities For Loading or Unloading From Ships to Cars of the German National Railways.

The board of directors consists of 18 members, nine chosen by the government and the private holders of preferred shares; the other nine are appointed by the allied trustee of the bonds; five of the latter may be and are Germans. The chairman of the board and the director general must be German. A railway commissioner, at present a French railroadman, represents the allies; normally he has no operating authority, but in event of default on the bonds he has the right to veto expenditures, increase tariffs, etc.

From 1924 to 1927 more than 1300 million dollars was paid on reparation out of the German railroads only. With this year, beginning September 1, 1928, the "standard year" is reached, that is to say, the German National Railway Company has to pay every year at least 165 million dollars out of its earnings and to deliver 226 million dollars transportation tax. This tremendous burden upon the German railroad traffic about equals the 390 million dollars which the Class One U. S. railroads paid on taxes in 1926 with a mileage seven times greater.

The Largest Inland Harbor in Europe, and Probably in the World, Is at Duisburg-Rohrort.

That the German railways under such difficult conditions were able to discharge "promptly and loyally" their obligations, as Mr. Parker Gilbert, the American agent general for reparations stated, may create interest in details of its management compared with figures of the American railroads. The German National Railway Company oper-

ates about 33,000 miles, about three times the Pennsylvania Railroad mileage; 43 per cent of the main road has second and more tracks to 17 per cent with the American Class 1 railroads.

As the United States is 17 times as large and its population twice as great as Germany, the latter has per square mile nine times more inhabitants and 2½ more miles of road than the United States. Obviously, therefrom follows a greater performance in the German passenger traffic, even under the assumption that the average American citizen would be so good a customer of his railroads as the German. But the German people, not so wealthy or happily equipped with automobiles as are the Americans, (the ratio of inhabitants per passenger car in Germany is 218 compared to 5 in the U. S.) travel four times as much on their national railways as the average American citizen on his Class 1 roads. Thus the German National on its seven times smaller mileage, carried more passengers, twice over, in 1925 than all the American Class 1 railroads put together; but of course the average German journey is about one-third as long as the American's.

A German passenger train carries on an average four times the number of passengers carried by an American train. Naturally, the larger number of passengers shortens by itself the comfort of traveling; but in compensation there is offered more privacy by means of compartments in four classes. For efficiency, however, it is proposed to abolish the four class system and to provide for only two classes, the "wooden" and the "upholstered" one. The through trains for longer distances carry good accommodations, also dining cars and sleeping cars. The latter are generally only used for night-traveling and have all compartments, each with lavatory, used by one first class passenger or two second class passengers. The excess rate for a sleeping car f.i. from Berlin to Cologne is $6 for first class and $3 for second class. In the through trains, especially the international ones, you may expect to find every accommodation which the Americans enjoy in their wonderful limited trains. One of the finest trains ever built is the new "Rheingold Express" recently put in the service of the German National Railway Company between Amsterdam and the Alps along the Rhine.

Sleeping Car on German National Railways; First Class Compartment at Left, Second Class at the Right.

In the freight traffic, of course, the American railroads surpass by far the German. The American Class 1 railroads perform ten times the German ton miles and the average freight train carries more than double the German freight, and more than three times the distance. As to density of traffic, however, there is not so big a difference, while the ratio of ton miles per mile of road is 11 in Germany to 15 in the United States.

In Germany you may find the same efforts for decreasing operating expenses as are noticed on American railroads. We call that "rationalization" i.e. systematic and scientific efforts in all branches of service. For results, these figures speak for themselves:

In 1927 compared with 1914:

Combination First Class Chair Car and Diner on the German National Railways' Rheingold Express.

	Per Cent
Passengers carried	plus 19
Passengers carried one mile	plus 23
Freight tons carried	plus 4
Freight tons carried one mile	plus 30
Number of trains	minus 14
Average tons in freight trains	plus 25

The German railroads are referred to by some American critics interested in the problem of government control. Having been close to American railroad men for two years I can fully understand the standpoint of those who are opposed to government ownership and operation in this country. If American advocates point to the German National Railways as good examples of government control it is necessary to emphasize that at present there are no more state railroads in Germany than before the war. At present the German railroads, although the stocks are owned by the government, are operated by a company, the board of which is composed of "business men of experience or professional railway men; they shall not be members of the Reichstag (congress) or of the parliament of any of the German states, or of the government of the Reich or of any of the German states." Thus political interference is held aloof from the railroads. Further, the regulatory power of the German government is exercised by the minister of transportation in a way very similar to that of the Interstate Commerce Commission, especially in controlling rates on United States railroads.

So I think it is less the viewpoint of government control which seems to me the fundamental difference between American and German railroads than it is the antithesis of competition and monopoly. There is indeed a practical monopoly of the German National Railway Company with 33,000 miles of road and only 3000 miles operated by what you would call "short lines" in this country. Indeed, the lack of competition imposes a great responsibility upon the management of a monopolistic enterprise. But this problem can not be solved generally for the whole world. It is different in the various countries where it is inseparable from the economic conditions developed in a long history. An unbiased observer of the railroad situation in both countries may find that the trends of developments are coming from opposite directions but going to the same goal: the German railroads grew up out of regional state systems, the main purpose of which was public service; but more and more the businesslike viewpoint had to come to the front. The American railroads, in the old times merely a private business, became more and more institutions

—Herbert Photo.

Second Class Chair Car and Diner on the Rheingold Express, German National Railways.

for the public service. So, both are paving their way to the ideal aim which combines the welfare of the people with their own interests, and this is "service and business".

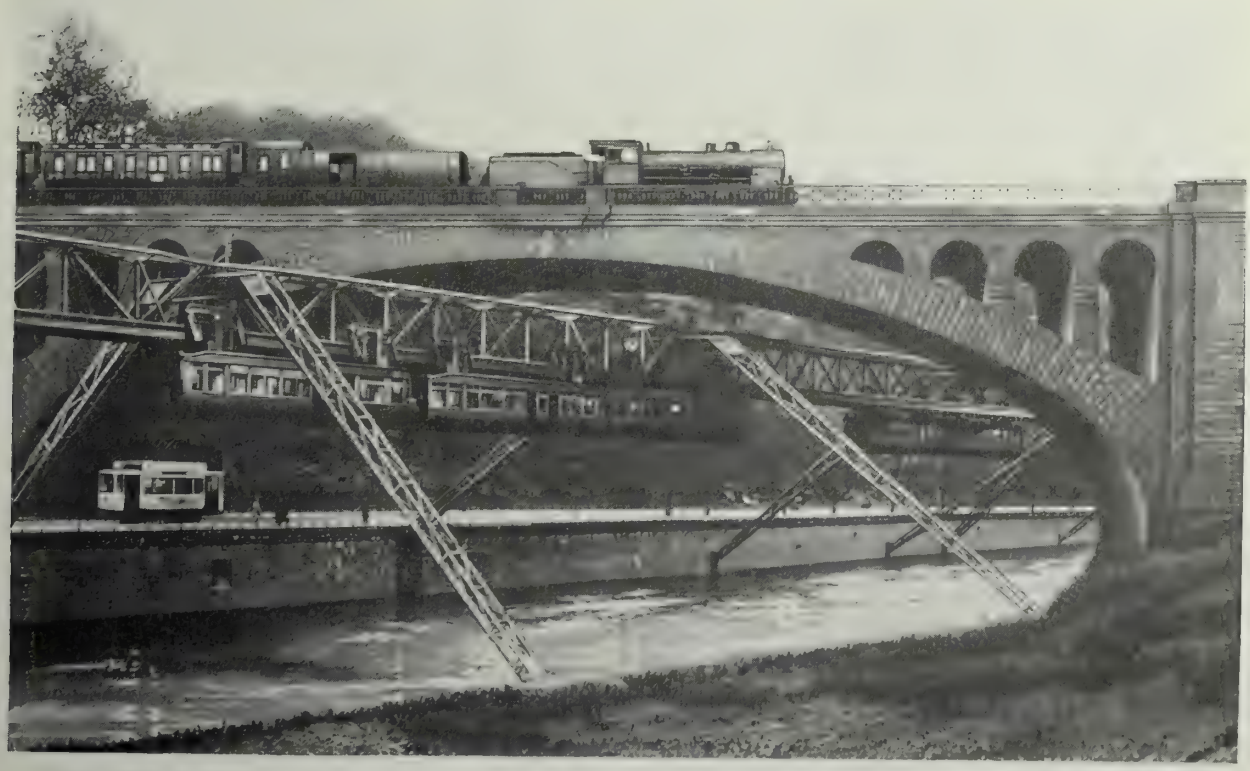
Look, Listen and Stop

The locomotive can give warning of its approach, and it never fails to do so. But it cannot turn either to the right or to the left, nor can it be brought to a stop as quickly as the automobile can. Nine times out of ten, the records show, the motorist is at fault in such accidents as occur at grade crossings. That the situation is gradually showing some improvement, notwithstanding the steady increase in the number of automobiles, is a cheering indication that reiterated warnings are having their effect.—Clifton Forge (Va.) Review.

Not So Bad Over Here

Car owners in England pay a tax on their cars of $4.86 a horsepower. On a 20-horsepower car Germany collects about $300. Beligum is about as bad. France on a 20-horsepower car levies $87 plus a 12 per cent sales tax and a 1.5 per cent turnover tax on the sales price, says Motor. Brazil collects a flat $50 on all cars. Argentina on a two-ton car gets $265. Many other countries have equally unusual methods and taxes, and the net impression is that one way to build a big automotive industry is not to tax the customers too heavily. It also discloses the real reason for the so-called "European-type car" which has to be made with a little engine and light load to avoid the heavy taxes. That's why this type in full form will never be required in America.

You Don't Have to Know German to Realize That This Deutscher Eisenbahnkraftwagenverkehr—One Word, Please—Is a Very Fine Example of Motor Bus Operated by the German National Railways.



Three Kinds of Modern Transportation Operating Out of Elberfeld: Steam Railway, Elevated Suspension Railway, and Electric Street Cars.

Queer Happenings in September

A NOVEL form of transportation which it is declared will banish the camel from the desert wastes of the Sahara and Arabia is embodied in a giant automobile supervehicle much in the nature of a land-going or dry-land "steamer."

Details of the proposed "desert ship" are reported to the department of commerce as the development of a German engineer. The machine will be about 125 feet long, 25 feet wide and 45 feet high with four wheels about 40 feet in diameter and have capacity of 150 passengers and 200 tons of freight.

The proposed substitute for the camel would look somewhat like an ocean liner; have four stories or decks, and all the "fixin's" of a modern liner or hotel, including even the bridal suite.

Steering would be effected by a hydraulic device and powered with two Diesel engines of 450 h.p. each, one being for emergency use, and capable of a speed of 25 kilometers an hour.

An appropriate feature of this unique ship would be a "cooling room" in which a low temperature will be maintained artificially!

Hot Weather News

The Associated Press burdened the wires, one day not long ago, with a dispatch from New York telling of a thrilling episode in the life of a young man, the son of J. L. Eysmans, Sr., vice president of the Pennsylvania Railroad. The son, the telegram said, had longed all of his life to ride in a locomotive cab. Up to his 28th year the craving never had been satisfied. Finally the great day came. Arrangements were made so that the young man could ride in an electric cab out of the Pennsylvania station and then in a steam locomotive cab to Harrisburg. But the really thrilling moment, as the Associated Press told it, was come when the crowd assembled. The A. P. added gravely, "five friends cheered him away and he wore overalls and a cap." Doubtless he also had a coat and some shoes and things but nothing was said about them.

But No Spike In It

Berlin tells the world that the Federal Railway Administration has ordered that milk markets be installed at strategic points to enable railway men to quench their thirst.

The administration soon will send out a special train to show the workers graphically the injurious effects of drink and the necessity for abstinence. In a letter to employes the administration states that in view of attempts to improve the speed of trains it is absolutely essential that workers be sober.

One Elephant Power

At Sydney, Australia, one day in August the services of Alice, a circus elephant, were used when trucks were derailed. The trucks left the line at crossing points, and as it was impossible to get an engine near them Alice, who was traveling on a special train, which was also held up, came to the rescue. In less than 20 minutes she had pushed the trucks on the line with her head.

It Was a Sedan —Maybe

At Milwaukee, one day early in September, the height of indifference or something was reported when Bertram Woods, Beloit (Wis.) business man, reported to police that his parked car had been stolen from a Milwaukee street, but he didn't know what make it was.

"It was a sedan," he told the officers.

Woods explained that he owned three sedans and he didn't pay any particular attention to which one he picked out for his Milwaukee trip.

Another Oldest Railroader

This story, with no name mentioned, is going the rounds of the newspapers: At the age of 90 a Milwaukee man is believed to be the oldest person in active railroad service in the world. He is inspector of boilers for the Milwaukee and has been working for this same line for more than 73 years. At last accounts he was still doing his trick of six hours a day and going strong. That is a long journey in the wake of an alleged soulless corporation, but is a rich contribution to the story of service. He could have retired with honor and a pension years ago, but it is his joy to continue in harness.

The treasury department has warned the railroads operating between the United States and Canada that unless they reduce the smuggling of merchandise, liquors and narcotics amounting to $10,000,000 annually the government will detain and examine all freight and express passing over the borders.

Tokyo has the honor of possessing the first subway transportation system in the Orient. On the day that the first section of the new system was put into operation, about 100,000 passengers used the trains. The rolling stock, ten all-steel cars, was built in Japan, but an American firm supplied all the electrical equipment.

The National Air Races *and* Their Meaning

Non-Stop Flights Still Risky

By Charles Dillon

One of the Big Tri-Motored Visitors En Route to Mines Field for the National Air Races. City Hall Appears in the Center of the Picture.

SEVERAL important facts were rather clearly demonstrated, last month at the National Air Races. For one thing, the growing air-mindedness of the public was pretty conclusively shown by the attendance, more than half a million persons paying for seats in the grand stands during the nine days the exhibition continued, and an astonishingly large number being turned away every afternoon because the grand stands and the bleachers were filled. In the second enclosure, back of the stands, enormous crowds surged back and forth, weary in legs and feet and necks—very much in the neck. Outside the field, along the highways for miles, an unknown number of persons in automobiles and trucks viewed the spectacle without charge, one of the perfectly wonderful things about air races to be commended. You can't keep a person from looking at the show in the air, and you don't need to peek through a knothole if, perchance, you lack the price of a ticket. In this connection while it is interesting to know the racing committee "broke even" on the show it is equally important to realize, with regret, that more seating facilities would have meant thousands of dollars additional for the treasury. More than 80,000 persons jammed the grand stands, the bleachers and numbers of improvised seats during the last day's exhibition. It is quite apparent that aviation has caught the public fancy.

Another fact impressed upon those competent to consider such things thoughtfully was that airplanes as now constructed are scarcely up to the task of making non-stop flights across the continent as a regular job. It has been done. Planes have flown to Paris, Honolulu and Australia, but they aren't doing it every day. In May, 1923, Lieutenants Kelly and McCready made a non-stop flight in

their Army T2 from New York to San Diego in an elapsed time of 26 hours and 50 minutes. On June 23 of the same year Lieutenant Russell L. Maughan made his famous dawn-to-dusk flight when he started from New York at daybreak and landed at San Francisco 21 hours and 48 minutes later. This was pioneering, not dependable transportation, and this is presumed to be the object sought. This will come, just as railroads and automobiles have come along the way toward perfection, by experiment, pioneering, accidents and death, the price the world pays for its conveniences.

The big show proved that aviation is improving and doing it rapidly. In last year's races from New York to Spokane only 18 out of 47 entrants finished at destination. This year there were 64 entrants and 39 reached Los Angeles. In the feature event, the non-stop race from New York to the coast, not one of the nine planes finished the journey according to rules. Arthur Goebel, holder of the transcontinental non-stop record, reached the Pacific Coast in 23 hours and 58 minutes, but had to stop in Arizona for minor adjustments and fuel, and this disqualified him. The only serious accident during the four transcontinental events occurred as two of the flyers attempted to make a forced landing at night after their parachute flare had burned itself out.

Powered by small motors, the Class "A" group made 16 stops en route because of the small gasoline capacity of the planes. In the non-stop race, however, there was no limit on either the size of the engine or the number of engines used. The other contenders were forced down for various reasons at points as widely separated as western Pennsylvania; Amarillo, Texas; and Rawlins, Wyoming.

In the races for airplanes of other classes that were required to stop and register at designated points across the continent, encouraging results were obtained. Of 37 planes in one class that left New York, 21 reached Los Angeles in creditable flying time.

—International Newsreel

The Musketeers, Lindbergh in the First Plane, Doing a Daring Stunt.

Rapid as its progress has been, however, aviation still is far from the point at which one may step into a salesroom and purchase a stock plane capable of making a non-stop flight across the United States.

Notwithstanding the disappointments, no more serious than were encountered in the early days of the automobile, the pleasant and encouraging fact remains that small ships driven by engines of 110 horsepower and less, and many of them carrying two persons, met every test demanded of them. Over rugged and forbidding mountain ranges, where a high ceiling was necessary to get through, and over desert and plain, with temperatures of 100 degrees and more, where a cool-running motor was essential to success, the planes never faltered.

For the first time in the development of flying the public was given an opportunity to watch a group performance of small ships. Fifteen of them dropped out, it is true, but not all of them because of serious trouble. Even in automobile racing, with the present day perfection of the motor car, it is seldom that any large percentage of the entrants complete the contest. In this competition, however, involving a 3000-mile cross-country flight, practically two-thirds of the contestants crossed the finish line. Furthermore, every plane in the race was strictly "stock." In other words, the identical ships which have just shown their mettle can be bought by the public from the manufacturers.

It is worth remembering, too, that among the two millions or more who viewed the air races, either from the field or the adjacent highways, there were thousands of repeaters, and these are the men who form public opinion of aviation, and doubtless do much to encourage its development.

The general public is interested chiefly in safety and speed. Except upon some special emergency no one who knows anything about flying cares to cross the continent without a stop, even if the plane can do it. The strain is overwhelming for passengers and it must be pretty severe on the pilots. A day in the air at 100 miles an hour is a thrill never to be forgotten, but at its finish any normal man or woman is ready to drop into bed and slumber. Questions put to spectators, some of them owning planes, proved this to be the usual viewpoint. Stunt flying interested them only for the thrill, a quality com-

Part of the Grand Stand At Mines Field, Los Angeles, During the National Air Races, Last Month.

mon to most human beings. Air passengers want no stunts in their journeys. Spectators said they watched the loops, the turns and the flip-flaps because, while they imposed a strain upon the planes they showed whether they were capable of carrying human freight in stormy conditions, and landing safely. Beyond this thought the people were concerned in the stunt flying of the army, navy and marine corps because this is what these chaps are expected to do upon occasion.

And some of the stunts certainly were terrifying. Fortunately, only one man was killed, Lieutenant Williams, U.S.A., and one injured during the races. As on a Roman holiday, these were only incidents that caused scarcely a pause in the entertainment. Even so complacent a gentleman as Lindbergh declared the exhibition "the most spectacular I have ever seen," and then, taking the place of Lieutenant Williams, one of the army's "Musketeers" killed the previous day, the young aviator proceeded to outdo everyone and everything in stunt performances, after which, he flew away calmly to Santa Barbara and his friends. As usual, he had nothing to say.

Undoubtedly it was a great national event in aviation. Figures given out by Dudley Steel, contest manager, showed that approximately 400 planes, army, navy, marine and civilian, participated in the races and exhibition flights. The register at the field contained the names of more than 1000 pilots who flew in during the meet.

The total flying time of the 400 planes was close to 7000 hours, Steele estimated, taking into account a number of transcontinental flights that were made.

The closest check Steele had on miles flown was between 75,000 and 100,000 miles. This required, he estimated, at least 100,000 gallons of gasoline.

An array of prizes comprising a fortune in cast and silver cups and trophies, enough to stock several jewelry stores, were the awards of valor and ability.

The races were conducted by the National Aeronautic Association, an organization composed of business men and flyers who are interested in development of American aviation. The activities of these chapters are directed toward accomplishing certain aeronautical results, such as the establishing of airports, obtaining air industries in their respective communities, such assistance as possible to visiting pilots, obtaining through their city and state government proper legislation covering the use of airplanes within the state, and the dissemination of all aeronautical information relative to the industry as a whole. The association has headquarters in the Barr building, Washington.

Air Mail Transportation

By W. Irving Glover

Second Assistant Postmaster General

The air mail has moved with such swiftness, not alone speed but in its growth, that those of us in the postoffice department can hardly keep track of its phenomenal growth. The large map of the

So Fast Is the Country's Air Mail Service Growing, As Shown Here, That W. Irving Glover, Second Assistant Postmaster General, Believes It Will Not Be Long Before Most of the Mail Will Be Carried, the Clerks Working the Letters As They Fly.

United States, in the office of the second assistant postmaster general in Washington, is now networked with air mail lines that one only has to look at it to realize that practically 65,000,000 of the population of the United States are on these direct air mail lines. Within two years every city with a population of 50,000 will be on an air mail line. This means an entirely new method in handling air mail will be required by the postoffice department. The main trunk lines which will be running east and west, and north and south, will be required to carry great loads; this mail so carried will have to be given "treatment" in the air. This means that a new title of postal clerks will develop and be called the air post clerk and he will take his place alongside his brother postoffice, sea post and railway mail clerks.

Along with this most advanced method of mail transportation will come, naturally, the larger airplane carrying one or two tons of mail, passengers and clerk. Ships of this capacity will carry great quantities of mail, and a look into the future will reveal that sooner or later this daily load is bound to take mail away from our railway mail service, and, of course, a deeper look into the future will see that, some day, mail of the first class will be carried by air between important centers, and this, too, will release great quantities of space in the mail cars of our railroad transportation systems.

Naturally, to offset this loss in revenue, these railroad systems will desire to keep up with the times and not ignore the new method of transportation, as often happened in the case of the trolley line and then the bus system of transportation, but will enter the field of air transportation and, along with the operation of the railroads, control the great transportation air lines either by ownership or working agreements. Already we have seen some of these combinations working together, those of the railroads and air transport companies.

This country cannot and will not remain backward in the transportation of passengers, mail and express by air. It knocks at the door of the railroads today. Listen!

Universal Air Lines system will install two seven-passenger planes between Chicago and Cleveland, giving overnight service between New York and Chicago in connection with New York Central's fast train service between Cleveland and the East.

Although combined air and rail service on New York Central Railroad began on Sunday, September 6, officials said no requests for airplane reservations between Cleveland and Chicago had been received.

In doing what we ought, we deserve no praise, because it is our duty.—St. Augustine.

Cool Weather This Year *for the* Engineers *at* Chicago's Big Convention

By W. B. Parnell

Cameraman Always Come Snooping Along Just As the Engineer is Oiling 'Round, But This Chap Seems Happy About It, Being Only a Motion-Picture Engineer Anyway.

FIVE hundred men lived up to their title, last month, when they went to Chicago, September 25, to attend the yearly convention of the Traveling Engineers' Association at the Hotel Sherman. They traveled from almost every state in the union. They represented 85 railroads of the United States, three came from the National Railways of Mexico, and seven came from the government railways of Australia, a long jaunt in itself—a party of mechanical officials sent over to study the locomotive practices of American railroads. Then, too, there were about 500 railroad visitors and railway supply men, so that from one source or another about a thousand persons were interested in the big gathering.

The weather man treated them more considerately, too, than he did last year when the heat blistered everything and everyone until it became advisable to adjourn the afternoon sessions, just as the schools were adjourned for the same reason. Paradoxical as it seems now nevertheless the weather was so hot it cooled the delegates' enthusiasm, and they were men remarkable ordinarily for their pep and business-like meetings. This year the weather was another Chicago selection: cool winds that turned cold at times, and even a flurry of snow that sent southern gentlemen and their wives scurrying for what the Australians call their great-coats.

It was a great meeting, too. The committees and the individuals are to be congratulated on the interesting papers they presented. There is such a wealth of good information in them for all railroad men that nothing but their great length

On the Spokane, Portland & Seattle Railway.

and the customary lack of space prevents our giving them in detail.

The committee on the "Further Possibilities of Fuel Conservation" rendered an unusually interesting report. It showed the members had spent considerable time and effort in securing data. In the introduction the committee said. "To develop a safe and better service to the public in general has been and is the aim of our railroads today. Economy in operation is considered secondary to this." They then gave an analysis of the amounts being spent by the railroads for capital expenditures to improve the service. The report continued:

"Class I railways' fuel cost in the United States in 1927 shows $310,869,524 expended for coal and oil for road locomotives in freight and passenger service (charged to operating expense). This is to be compared with $327,465,482 in 1926. In 1927 the roads consumed 95,459,840 net tons of coal at an average cost of $2.66 a ton, compared with 101,155,412 tons in 1926, at an average cost of $2.63 a ton. They also consumed 2,042,137,055 gallons of fuel oil, slightly less than the year before, at an average cost of 2.81 cents a gallon, as compared with an average of 2.95 cents the year before. The expense for oil was $57,326,689 as compared with $60,938,230 in 1926.

"To the extent which railroad managements under private ownership, through added efficiencies, have operated with a continuing betterment in service and betterments as a whole, may be represented in the following data, quoted with reference to fuel savings. In 1920 fuel consumption in freight service amounted to 197 pounds per 1,000 gross ton miles (excluding locomotive and tender). In subsequent years this has been continuously decreased until 1927 when only 148 pounds were used.

"In the passenger service the fuel consumption per passenger train car mile amounted to 18.8 pounds in 1920. In 1927 the corresponding fuel consumption was 15.4 pounds.

"No doubt, the pounds of coal per passenger car mile would have reflected a larger saving but for the increase of approximate weight of passenger car equipment of 10½ tons since 1920 to the present time.

"Calculated on the basis of traffic handled every year since 1920 and the average price of fuel in these years, this increased efficiency in fuel consumption as compared with 1920 records has resulted in a fuel saving of $283,437,000 in the freight service and $73,684,000 in passenger service since 1920."

The committee brought out a rather interesting point when it said the traffic department could assist in fuel conservation as the loads in cars and the character of the service sold vitally affects fuel consumption, because the securing of the maximum tonnage load which the locomotive is designed to haul secures the economic result. As an example the committee said "on a level grade at a speed of 20 miles an hour it requires 460 pounds tractive effort to haul 50 tons in two cars of 21 tons weight. It requires only 270 pounds to haul 50 tons in one car of the same weight or 41 per cent less. To haul the same car and contents at 40 miles an hour increases traction from 270 to 412 pounds or 53 per cent; hence the importance of heavy car loads and moderate speeds."

The committee then called attention to the necessity of keeping the boilers clean and dry and free from scale and leaks, after which it presented a series of questions which had been submitted to the various roads, and a tabulation of the answers received.

In the latter part of the report devoted to oil burning engines, considerable stress was laid on the necessity of improving the design of oil burning engines not alone because of the economic possibilities but also because of the necessity of conserving fuel oil. It is estimated, the report said, that there are only 3,651,000,000 barrels of crude oil in the ground in this country, and that 900,000,000 barrels were produced last year.

Attention was called to the possibilities of fuel conservation through the use of remote control switches thus eliminating the number of stops made by freight trains. In discussing this phase of the report Mr. Ragsdale of the Southern Pacific estimated that the use of the remote switch control on his road, which allows trains to meet and pass each other without stopping saves from 50 to 75 gallons of oil for each meet.

F. P. Roesch presented a paper on "The Effect of Design of Front Ends, Grates, Ash-Pans and Coal Grates, on Locomotive Operation." In this connection he reviewed the history and development of the design of locomotive front ends and inquired whether changing conditions did not make possible certain changes in design that would be beneficial.

Mr. Roesch suggested the possibility of doing away with the dia-

phragm plate, the table plate and the petticoat pipe. He admitted that his ideas were somewhat theoretical but said he presented them in the hope that they might lead to discussion and possibly to some experiments that would advance locomotive performance. He called attention also to the fact that the size of grate or air openings on hand fired engines is not of great importance, but that on stoker-fired engines the size of the coal is reduced so as to be better adapted to mechanical distribution, and a much thinner fire is carried. Thus, he said, the question of reducing the size of grate openings becomes paramount. He believes considerable savings in fuel can be accomplished by giving serious attention to the question of grate design.

Part of the New Engine Facilities in the Frisco Terminal at Yale, Tenn.

The paper on "Automatic Train Control and Train Stop Installation and Maintenance", prepared by W. C. Kelley, supervisor of automatic train control for the Illinois Central, said that to date the track miles ordered equipped by the I. C. C. with train control totaled 14,931, and that of this 98.5 per cent has been completed. In addition, 4,569 miles of track have been equipped that were not covered by the commission's orders.

The committee report on the "Best Method for Successfully Handling Locomotives in Extended Service", stated that when the plan for long locomotive runs was first presented it met with considerable opposition and was considered too radical a departure, but that now we have arrived at an era in which the standards of operation and efficiency have been raised to a new high level, and these demand larger boilers, higher pressures and longer runs. It is no longer sufficient to move a large number of tons per train; competitive conditions make prompt movement imperative. Speeding up movement has its effect also on operating costs. Some reports show that extended service has reduced the number of engines required 25 per cent, has increased the mileage of the engines 60 per cent and saved 15 per cent on fuel consumed.

The report states that the five fundamentals to successful operation of extended runs are: the engine must be in the pink of condition before starting, good coal or oil must be used, there must be intelligent cooperation and good-will between the engineer and fireman, the engine must be operated at the proper cut-off, the fireman must do a good job of firing.

Extensive reports were also presented on the subjects of "Train Handling", and "Internal Combustion Engines". In the former it was pointed out that in order to prevent rough handling in starting trains it is necessary to have sufficient tractive force which can be secured by either proper locomotive design or the application of a boosting mechanism. The report also states that over eight times as much tractive power is required to start a train equipped with A.R.A. standard bearings as is required to move the same train when equipped with roller bearings.

Officers elected for the next year were: President, James Fahey, N. C. & St. L. Ry.; vice presidents in order shown: Ralph Hammond, New Haven System; Robert R. Phair, Can. Nat'l Rys.; H. B. Kelly, P. & L. E.; J. M. Nicholson, Santa Fe Ry.; J. D. Clark, C. & O. Ry. Treasurer, David Meadows, Mich. Cent'l.; secretary, W. O. Thompson, N. Y. C. R. R. W. E. Vergan of the M. K. & T., and M. J. Macias of the National Railways of Mexico, were elected members of the executive committee.

New Railroad in Balkans

Negotiations are in progress for the building of a new Balkan railway from Durazzo to Constantinople, for which a good deal of survey work has already been carried out. The promoters of the scheme are the Balkans Railway International Syndicate, an Italian group, supported by various Turkish, Albanian, and Greek financiers. Such a railway, by its connections through Italy, would shorten the journey between England and Constantinople by many hours and have a beneficial effect upon trade between the East and West. A syndicate is now being formed in England to cooperate with the Italian group in promoting and financing the scheme.

Modernization, Safety, Speed, Comfort

Ideals of A. E. R. A., at Cleveland

By Wilson B. Fiske

J. P. Barnes, President for 1928-1929.

MASS travel in the future will be greatly simplified by the coordinated facilities of rail, highway and air travel, according to viewpoints expressed in the American Electric Railway Association convention at Cleveland, September 24 to 28. Here the products of many cities, the successes, failures and diversified experiences of railway and bus men from all over the country were pooled for the betterment of the industry as a whole.

The recognition of increasing competition and the sincere desire to combat problems of mass transportation on a practical basis were evinced in the opening speech of President R. P. Stevens.

"We have struggled with the problem of the automobile for a number of years," said Mr. Stevens, "but we are finally about to meet it upon its own ground. We are in the process of developing equipment with which to meet the competition of the individual vehicle."

The truth of this statement was substantiated in the convention by an exhibit of modern rolling stock, many types of which have never before been utilized or displayed for the commuting public. In this group of electric cars, the largest ever shown at an association convention, were radical departures from the slow and cumbersome vehicle of yesterday. Lower lines, lighter equipment, more comfortable seats, labor-saving devices, quicker starting and stopping facilities, and noiseless features, are embodied in the latest electric street cars of 1928.

Statistics of the last few years show that railway-owned motor coach lines have increased but are used principally as feeders or in cross-town traffic. They have also found greatest use in the small towns unable to finance railways or support them.

Future need of rapid transit subways was highly stressed by Henry I. Harriman, president of the Boston Chamber of Commerce. He predicted that the subways in American cities would be built and owned by the communities they served, and considered a part of the street system. "Operation," he said, "probably will be private under a lease arrangement."

R. P. Stevens, Retiring President.

J. W. Welsh, General Secretary.

People in Cleveland were treated to an unusual sight on their own local lines during the week of the convention when a modern street car, built on the low rakish lines of a motor coach and weighing less than one-half as much as an average street car, whisked silently over the rails sounding its crossing warnings through the voice of a horn. Natives of this city were likewise made aware of the departures and modernistic changes in rail transportation when the Cleveland Railway Co. set an example by putting up-to-date de luxe coaches into operation on certain of its main lines.

Electric railways have proved their value as public service factors in this country, and whether

Publicity Landmark of the Chicago, North Shore & Milwaukee R. R.

they remain for the most part under private ownership or pass into the control of municipalities, the rails undoubtedly are here to stay. As President Stevens stated in his address on Monday, September 24:

"Nothing has happened in the last year to change our firm conviction that the electric railway industry is a permanent, basic industry. Nothing has been devised that can take the place of the electric car in handling expeditiously and economically the local transportation of the masses in our large and medium-size communities. Nothing is apparent in the immediate future that will affect seriously the permanent value of our industry to the communities it serves."

With reference to the congestion problem in cities, statistics show clearly that the responsibility of mass transportation has been largely assumed by the railways with least interference to surrounding vehicles. In a street car, it is said, one person seated requires seven square feet, or six square feet of space when standing in times of congestion. Automobiles in the rush period contain an average of 1.7 persons and require 47 square feet of space to the passenger. In other words, it requires 38 automobiles to accommodate the passengers carried by a modern large street car. Since electric railway managements carry the majority of local passengers, much of the traffic congestion relief work and accident prevention efforts have centered in the American Electric Railway Association.

At the Cleveland convention, this year, about 10,000 members registered in attendance, filling every hotel in the city. Nationally and internationally known figures were there and officials of the country's leading electric enterprises clasped hands in a common relationship. These men from everywhere will carry back the inspirations of Cleveland's convention of 1928 and make use of them as they tackle their own sectional problems.

Modernization seemed to be the uppermost thought. One heard it mentioned everywhere.

"Modernization," said Henry G. Bradlee, vice president of the association, "to meet future needs requires not only improved facilities and methods, but must include also the rejuvenation of management and men. The printed rules must be replaced with individual interest and initiative. Responsibility for results must be charged to every individual employe. Every patron is a potential competitor who can provide his own transportation. He requires individual attention; his special needs and those of his neighbor must be studied, ascertained, and provided for by whatever vehicle and with whatever class of service may appeal to him. Service required by one may not be practical for others. Therefore, various classes of equipment and service will be needed to provide for the requirements of everyone.

"Speed is one of the essentials for every class of service and, to secure it, traffic problems are encountered. The responsibility for traffic regulation normally is assumed by public authorities but, if satisfactory service is to be rendered by public transportation companies, our management must become a real factor in creating a public understanding of the mutuality of interest in conservation and utilization of the public streets."

One platform upon which the railway men have agreed this year is the necessity of advertising. Hitherto transportation has been considered as a public service requiring no such help. "Merely to ascertain and provide the transportation requirements of present and potential customers does not mean necessarily that the maximum of patronage will be secured. Sales effort must be added," said Mr. Bradlee.

Lucius B. Storrs, managing director of the A.E.R.A., made the following report that a plan had been worked out by a committee of the association under the chairmanship of Lucke C. Bradley of New York, which will permit purchases of cars under terms of 15 per cent down and the remainder in ten equal payments. Thus, Mr. Storrs said, it is believed companies will be able to pay for their new cars out of savings actually made through the use of modernized equipment. Either car manufacturers or financial houses will supply the credit.

Mr. Storrs said it is true that if

Walter B. Eubanks, Conductor of First Commercially Successful Electric Railway.

Barron Collier, Treasurer.

the industry had been able immediately to increase the price of car rides when costs of producing these rides began to go up there might never have been the insistent need for such generally high rates as are now essential.

"I am firmly of the opinion," said he, "that the only logical and sound cash fare is 10 cents with such modifications as may be necessary to induce the greatest use of the service."

One of the high lights of the convention was the awarding of the Charles A. Coffin gold medal to the Virginia Electric & Power Co. of Richmond, Va. This prize is awarded yearly to the company which, in the opinion of the judges, has shown the greatest progress during the year. Keen competition is produced. The prize has been a potent factor in developing better public relations and modernizing of property. Part of the reward, in the form of cash, goes to employes of the winning company as an incentive to better service.

Among the outstanding exhibits at the convention were a miniature model of the Chicago North Shore & Milwaukee Railroad's efficient system and service, the world's fastest interurban electric railroad. This line incorporates the futuristic principles of transportation by providing ticket connection with bus, railroad, boat or airplane. The company likewise is among the first to advertise service extensively as set forth in the modernization programs.

The first conductor to operate on a successful electric railway, Walter B. Eubank, now 67 years old and still a conductor on his original line at Richmond, Va., was at the convention and exhibited an operating model of that first electric railway as reproduced by himself. The Richmond road won the Coffin award this year in point of progressive service.

Unusually large displays of motor coaches were exhibited in all types, including observation coaches, city type buses, utility coaches and buses with double overhead trolley apparatus to operate electrically from two trolley lines. Interchangeable track wheels and pneumatic tire equipment are afforded on some of the latest. Equipment of every description designed for efficiency was exhibited in the big Public Auditorium and in the yards. Everywhere were evidences of the great modernization era into which present day transportation is entering.

J. P. Barnes of the Louisville Railway Co., Louisville, Ky., was elected president of the association for the coming year.

C. E. Morgan, Vice President.

Lucius S. Storrs, Managing Director.

Sounds Familiar

Motor competition has caused such severe losses to the Hoer-Boerby railway line, one of the oldest in Sweden, that the operators have asked government permission to abandon the route. A few years ago the line was one of the most prosperous in the country, but the more elastic passenger and freight service provided by motor coaches in the densely populated area attracted most of the patronage and trains recently have been running virtually empty.

Air Cops Were Busy

Violations of air traffic rules, from the carrying of explosives to illegal parking, came under the stern hand of air traffic cops of the aeronautics branch of the department of commerce during the year ending July 1.

There were 219 detected violations of flying regulations.

"Violators have run the whole gamut of the air traffic rules," the department reported, including low flying over congested areas, acrobatics with pay passengers and carrying explosives. Unauthorized parking, or the establishing of landing fields, was one of the infractions.

Editorial Comment

Improved Public Relations

ONCE more the grape crisis is acute. It was relieved a few months ago by the benevolent Interstate Commerce Commission, acting under the ubiquitary provisions of the Hoch-Smith Resolution, but a relapse has taken place. This was disclosed a few days ago in a public meeting at San Francisco. The outstanding feature of this meeting, however, was not the grave crisis referred to, because this is no longer news. Without any desire to appear sensational it is, nevertheless, a duty to record the fact that no one even mentioned railroad rates.

Donald Conn, the grape growers' business manager, declared the industry's salvation depends upon selling more and better grape juice. Right now, he said, grape juice is too costly for average persons. Mr. Conn is to be congratulated. We are in favor of better and cheaper grape juice. Indeed we feel safe in saying that if this important industry can be saved in only one of two ways—cheaper juice or lower rates—we are strongly in favor of the former. We believe all railroad men will join heartily in a campaign for this new form of relief. Moreover, if grape juice is not mistreated there will be no violations of Rule G. However, we hope to know more about the fate of this grape business immediately after election.

Add Queer Things

The editor of Electric Traction discovered a convention delegate taking notes of the talks and papers. The thing astonished him so much that he had to write an editorial about it. Few delegates appear to understand just why they are sent to conventions. Many apparently believe their duty done when they register. Then come the new shows and other things not found at home. Nine times in ten the largest convention is held in the lobby. A few sincere committees do the work. The others keep close tab on their expense accounts.

How About the Bills?

Sir Henry Thornton, president and chairman of the board for the Canadian National Railways, went to an employes' picnic not long ago. Despite his title, Sir Henry hails originally from old Indiana—Logansport—a fact which somehow doesn't fit into his ideas about government ownership of railroads. Said he to the employes: "We have in Canada what may be described as a great experiment to determine whether a railway system owned by the people of the nation and dedicated to the welfare of the nation and founded upon the principles of justice, faith and goodwill with respect to its army of employes can or can not succeed, as compared with enterprises which are conceived solely for the purpose of making money for their shareholders."

The experiment may succeed, Sir Henry, but can the Canadian people afford it? And, if the Canadian experiment is dedicated to the welfare of the nation, isn't it fair to suppose the nation, made up of human beings, would enjoy a material reward just as gleefully as if they were not involuntary stockholders? Service certainly is a wonderful ideal, but isn't it pleasant occasionally to have a jingle in one's pocket?

The Spirit Counts

The Palm Leaf, published by and for the employes of the Jacksonville Traction Co., with several copies of a leaflet entitled Trollicar Topics, has just come to the editor's desk. Among many examples of public utility literature for public consumption the Jacksonville product takes a leading place, especially the crisp and human leaflets. If these continue to arrive with becoming regularity the editor's labors are going to be much lighter. They are almost as interesting as the Book of Proverbs.

A Little Nonsense Now and Then

Isn't it peculiar how some persons seem to abandon common sense and balance once they stand before a public meeting? Addressing the Society of Automotive Engineers one afternoon last month, one of the speakers declared the entire transportation system of the world must be revamped, and gave the impression that it ought to be done before night. Much of the equipment, particularly rail equipment, he said, is obsolete, inadequate or inefficient in view of general developments for comfort, economy and convenience.

What do you think of that, you railroad gentlemen who have been spending millions for handsome, out-of-pocket passenger trains? We haven't used the speaker's name because, according to law, it is libelous to make a man ridiculous before the public even if what you print about him is true.

A Bus War in England

Over in England rather a grim war has broken out between railroads and motor coach companies. Such a thing couldn't happen in America. For one

thing, the railroads in this country are getting into the bus business themselves, rather tardily it is true, and some day may own most of it—as they should.

In England the railroads have suddenly slashed fares down to a cent a mile, with week-end tickets good for five days. These tickets will be good on any train, even on the fastest and most luxurious expresses. It is a reduction of 66 2-3 per cent from the ordinary fares. The new rates became effective September 1.

British railroads have been hit hard by the long period of good weather, which has driven people to the motor coaches. As a result the railroad receipts from passenger traffic have fallen off in the past three weeks by $3,360,000, as compared with last year. There has been the tragedy of empty trains, seven-coach trains running with 30 to 40 passengers, while the motor coaches have been crowded.

It's Still Imperfect

An automatic gear-shift for automobiles, to be shown in the big exhibition, October 11, in London, is certain to receive much attention, but the reporter who sent out the story a few days ago had no justification for saying it "would attract an enormous number of women drivers."

This is a wornout theory. The records of accidents involving women drivers do not reflect upon their intelligence or quick thinking any more than upon the same qualities in men. Gear shifting is more of a trial for women because it imposes a strain upon them physically. It would take a woman built on Angus or Galloway lines to operate a motor coach, for instance; but women think just as quickly as men, just as clearly, and very often to much better effect.

The new gear change takes the form of a small lever on top of the steering wheel. All the driver does is to point the lever to the gear he wishes to change, marked on a small dial, press down on the pedal with his foot and the gear changes itself.

The dial is marked 1-low, 2-medium, 3-normal, 4-high, and neutral and reverse.

If this inventor can contrive something to slap a fool driver in the face and stop the car when about to encounter a railroad train we shall have real occasion for public rejoicing.

Airplane vs. Railroad

No one familiar with the true situation expects that the airplane will supersede any of the existing methods of transportation, in the opinion of William P. MacCracken, Jr., assistant secretary of commerce for aeronautics. After referring to the present service of the four existing agencies of transportation, namely, railways, waterways, the motor and the electric traction line, he says in a recent analysis:

"It is more logical to believe that the airplane will find its proper place as a fifth carrier in our national system of transportation. The backbone of this system is, and will continue to be, the railroad.

"The airplane has already become a factor in the transportation scheme. It is quite logical, therefore, that the railroads should be the agencies to aid, in its further development, particularly in regard to passenger service. The railroads have had the benefit of experience and training in such work. They already possess efficient organizations capable of taking over the routine details. They are financially sound and are thus able to withstand any period of initial sluggishness or later temporary depression. The airplane will be especially useful in making short cuts over mountains or impassable country around which the railroad must detour. There can be a combination railroad and airplane service by means of which a traveler can fly by day between certain points, boarding a train at evening for a night's sleep in a Pullman. Finally, the airplane can prove of great help in emergencies, as for instance when snow slides, wrecks, bridge washouts, and rock slides have seriously impeded operations."

So John Has a Job!

The most interesting feature of the news about John Coolidge getting a job is the young man's choice of railroading for a career. Newspaper writers, apparently forgetting John's ancestry, have kept themselves and other light-minded persons in mental turmoil for a year over the plans the President's son might be making without telling the public about it. Now the matter is settled, John is at work for the New Haven as a clerk and trying, like any sensible young man, to live within his meager income.

Sons of great men all remind us their careers are not sublime. Imagine poor John going to work, the first morning, guarded by a secret service operative, with the usual camera squad and inquisitive reporters lying in wait for him! Can you imagine anything more embarrassing? At first glance it seems funny, but not for John. For him, right now, his father and his father's job are a dreadful handicap. If the boy adds a lot of car numbers into the net return he should be forgiven.

Fiction and Fact

The most entertaining fiction of the year, but doubtless not the best seller, we have found in the annual report of Gen. T. Q. Ashburn whose works we have reviewed at some length in other issues of this magazine. Ordinarily, we can go right through a 250-page thriller in an evening if company doesn't break in, but General Ashburn's latest book was a bit too thick.

According to the general's way of thinking, the Mississippi-Warrior River service is a whale of a

success. But the report for 1926 shows that the net results of this government service, 1920 to 1926 inclusive were:

Year	Amount	
1920	$1,167,302.92	Loss
1921	776,156.95	Loss
1922	996,399.53	Loss
1923	955,359.91	Loss
1924	532,610.42	Loss
1925	34,519.39	Loss
1926	219,511.96	Profit

These figures reflect the items in the books of the Mississippi River commission and therefore take into account only the items which the government expended in the actual operation of the boats.

It is a matter of common knowledge that the government has a system of bookkeeping of its own and any one who remembers what General Dawes said about the postoffice accounts when he undertook the position of director of the budget, may make their own appraisal of their value. General Ashburn's figures do not include any of the items mentioned here:

The government pays no taxes, but if it did pay on 15 million dollars worth of property, a rate equal to that paid by the railroads, it would amount to approximately $260,000 a year.

The government pays no interest, which at five per cent on 15 million dollars would be $750,000.

The government maintains a channel in the Mississippi River but charges none of it to the boat lines.

The records show the following expenditures for maintaining the channel:

Year	Below Cairo	Between Ohio and Missouri Rivers	Total Channel Maintenance below St. Louis
1921	$ 3,213,005	$ 487,922	$ 3,700,927
1922	1,850,622	491,684	2,342,306
1923	1,995,798	653,596	2,649,394
1924	1,545,092	602,908	2,148,000
1925	2,812,740	565,411	3,378,151
1926	1,910,064	469,773	2,379,837
1927	3,898,548	536,077	4,434,625
	$17,225,869	$3,807,371	$21,033,240

In addition to this, the government operates what are called "Snag Boats" whose function is to remove snags and other obstructions from the channel. Their occupation is practically continuous. This service cost, for work south of St. Louis, as follows:

1921	$ 98,923
1922	90,661
1923	122,011
1924	111,337
1925	117,456
1926	93,744
1927	107,732

Just what part of these expenditures for maintenance and snag boats should be charged to the government boat line service is problematical, but if it were apportioned over all the traffic on the river as an overhead expense, the government boat line undoubtedly would have to carry the larger part of it.

It is clear that the term "profit" as used by General Ashburn in his interesting work is subject to several important reservations.

Altogether, the government is making huge expenditures for the few who use the Mississippi Barge Line service. Just exactly what benefits accrue to them is difficult to ascertain but whatever benefits there are, are being realized at the expense of the nation's tax payer's generally, the effect of which on the individual is hardly distinguishable. It is, however, contrary to our whole theory of government, that one part of the people, section, race or community, should be subsidized at the expense of the nation as a whole.

The federal government is formed upon the theory that it is the mutual friend of all interests which it protects. Specific benevolences should be only those which have the unanimous approval of the nation.

Stunts and Aviation

This magazine is interested in aviation only as it affects the transportation of passengers, freight and express. It is most decidedly not interested in stunt flying. In the army and navy, it is true, stunts are demanded because a flyer must be able to perform many dangerous tricks to overcome an enemy. Many lives have been lost in the training for these aerial careers in the country's service. Because such work is declared necessary it must continue. Stunts for the edification of crowds at races or fairs are of very doubtful value. They cost the country many lives. They create anguish and distress for families. Luckily, only one such tragedy marred the great national air races at Los Angeles, last month, but that tragedy robbed the country of one fine young flyer who might otherwise have lived to do deeds of daring when they were needed.

About the first thing David F. Houston said when he became secretary of agriculture in President Wilson's cabinet was that the farmers already knew enough about how to produce; what they needed to know, said the secretary, was how to distribute. It seems to thoughtful men that the country already knows enough right now about the necessities of airplane travel across the oceans; what we now have to do is produce the plane that will do the work. Airplanes can be tested at the factories where competent men may do the dangerous work without recklessness encouraged by the cheers of spectators most of whom would turn away from the bloodshed at a bullfight, but still are willing to gape at a man risking his life for their entertainment.

Scientific mechanical genius applied to the development of the airplane has worked wonders since the Wright brothers demonstrated the fact that a heavier than air machine could fly effectively. This has been a very short period in the world's history. In the next few years greater wonders will

be accomplished, possibly to a great extent through some genius of the type of Edison and Marconi.

Lindbergh's achievement electrified the world and gave aviation a much needed impetus. Lindbergh's flight was in no sense a stunt; he was blazing the way for future aerial development. Since then stunt flying for prize money has cost the lives of 30 or more of the most courageous and worthwhile men and women in the field of aviation.

Cruisers, submarines, destroyers and aircraft used half a million dollars' worth of fuel searching for the Dole flyers. It took $300,000 to finance the stunt; then there was the pay of thousands of men needed to run the ships. Call the expense a million or a million and a half and you will be close to the mark.

But the loss in time and money is nothing compared to the harm that has been done in compelling millions of the big human family the world over to spend anxious days and sleepless nights awaiting some news in regard to the safety of flyers.

The first ocean hops were worth while just as any first time endeavor is worth while. To-day, however, it has been plainly shown that to be of any real service to trans-ocean aviation, a plane must be developed capable of alighting on an average sea and remaining afloat indefinitely. Seaplanes necessarily are much heavier than a corresponding land plane would be, because they have to carry bulky, heavy pontoons instead of two small light wheels, and as any given plane can lift only so much and ocean-crossing planes must carry every drop of gas and oil they can lift, pontoons are sacrified for the vital fuel.

Furthermore, pontoons being bulky, very materially cut down a plane's speed, requiring still more gasoline to carry the craft to its destination. This is why land planes have been used by ocean-hoppers instead of seaplanes.

All of the sacrifice in lives and money may prove worth while if the impetus given to the efforts of men of scientific mechanical ability enables them to develop some kind of motor power that will make it possible for a plane to be developed that can be turned at will from an air machine into a sea-going plane. No doubt this will be accomplished in the near future, possibly a plane equipped with three motors reasonably to insure it against engine failure, massive enough to remain seaworthy after alighting in a fairly heavy sea, and big enough to carry a sufficient crew to see it safely to its journey's end.

In the meantime nothing should be done to further flying over oceans for stunt, publicity, sporting or gambling purposes. Avoidable aerial accidents do great harm to the future of aviation. The government, through the department of commerce, should have greater authority in the regulation of aviation, but the real check on stunt flying should come through the public. Prizes should be awarded for improvement in equipment rather than for daring and useless flights in the planes now in use.

Regulation for Motors

To a man on the fence it seems that the next logical development to ease freight terminal and highway congestion, to help materially in cutting transportation costs and to prevent no telling how many things getting in the way of the moving of crops or goods, is to attempt some kind of unity in the development of motor truck regulations.

Spasmodic attacks here and there on trucks, their drivers and their owners accused of carelessness on the highway or lack of regard for the rights of anybody else, are growing more numerous. Almost any county in any state has experienced more or less of this. In Canada, where authority moves faster in some things — if less thoughtfully—than in the states, influential and wild proposals are being made.

Edmond G. Odette, member of parliament, has called attention to conditions he doesn't like in Ontario. He doesn't want much: only to have "set hours" established for drivers of long-distance trucks! He has been aroused by the number of accidents caused, he says, by drivers falling asleep at the wheel. Many truck owners, especially the liquor barons, whose heavy-laden trucks jam the highways from Toronto, London, Hamilton and other cities to the border communities put two men on each truck, one supposed to sleep while the other drives. But this doesn't work very well, because a jolting truck isn't the best place to rest or sleep.

The tremendous volume of business now handled by trucks is merely a beginning. The more than a billion dollars that the country is spending annually on good roads is for trucks as well as passenger cars. The new kind of terminals that arrange for trucks recognize what is coming.

Detroit is about ready to start a new hotel on the site of the old Tuller which in connection with its garage will accommodate 300 buses. In Omaha 1,000 trucks are bringing live stock and dairy products to the city daily and there is to be a great motor truck terminal to receive and distribute freight. Shippers, through their association, are planning platform space for 50 trucks, and for refrigeration.

Trucks handle perishable goods quickly with little loss, they keep moving, they load and unload and get out of the way. All over the country they are taking short haul freight away from railroads or the railroads are using them as an auxiliary and feeder service.

Railroads are best equipped to take advantage of the motor truck and bus development. They should seize leadership instead of looking upon it as unfriendly competition. Of course this means they must develop the business instead of controlling it for the sake of hindering it. Otherwise their time

and money will be worse than wasted, for the development is inevitable.

The gigantic resources of the railroads would make them unassailable as competitors. Assets that would become immediately available, or almost so, and completely serviceable for the profitable operation of this business are their warehouses, loading and unloading platforms, freight handlers and stations. They have an elaborate personnel trained in the business, which beginners in transportation could not develop for years. They have the entire business world lined up as customers. They have been the recognized common carriers of the country for a century.

When they announce that they are offering truck or bus service or both, that will be the signal for a new flood of business which at this time is not going to motor vehicles because of lack of confidence. The operating companies do not enjoy a reputation over a period of generations, no matter how able or reliable they may be.

Montreal After Grade Crossings

Montreal is wrestling with the problem of eliminating its grade crossings—all of them. Since the job is to be completed in less than four years, the way to do it must be decided soon. Alfred Leduc, minister without portfolio in charge of trade and commerce in the provincial government at Quebec, has been assured by the St. Henry & Ste. Cunegonde Ry. that obstacles can be surmounted before the summer of 1932. He says the government will solve the problem.

Three plans are under consideration. The cost of any one of them is going to be quite a sum. The first plan provides for a railway station and freight yard in St. Henry, eliminating all crossings.

The second, which has received the most attention, would run all passenger and freight trains underground within the city limits to Bonaventure station from the Turcot yards. A boulevard would be built along the present right-of-way from St. Henry to Bonaventure station.

The third plan calls for a union station, all western lines to enter Montreal on the Canadian Pacific tracks to Windsor station, while the southern lines would run underground to this station or would be elevated from Victoria Bridge along the Canadian Pacific right-of-way. The Canadian National Railways tunnel under Mount Royal would be used for northern lines.

Why Coolidge Vetoed the Farm Bill

It is not the desire of this magazine to discuss politics except when the matter involved affects railroads or other forms of transportation. In a very large degree the McNary-Haugen measure, proposed in two congresses, would affect railroads in obvious ways which it is not necessary to discuss here. Mention of this bill is called for now because the magazine has been asked twice, by rather distinguished persons, to explain just why President Coolidge vetoed it.

In the first instance the McNary-Haugen bill offended the President's sense of economics, as it should with any studious person. But there was one other very important objection: It was unconstitutional. President Coolidge is a pretty good lawyer, it should be remembered, but he does not depend upon this fact to guide him. He has an attorney general for the express purpose of advising him about such things as this; and this is what that gentleman had to say about the McNary-Haugen bill:

"I feel bound to advise you," said Attorney General Sargent, "that the act in question, if approved, would violate the Constitution of the United States, in that legislation having for its main purpose the control of the prices of food in the interest of the producer is not authorized by the Constitution; in that if congress possessed the power to do things attempted by this act it could not delegate it, as it is legislative in character; in that it vests in those not officers or agents of the United States the power and duty of participating in appointments to fill places in the service of the United States; in that it contravenes the provisions of the Constitution against the taking of property without due process of law."

There are still other reasons for the veto, but they aren't needed.

The Editorial of This Edition

A FEW points on education were discussed, last month, in this column. We mentioned the fact that men seldom read history or biography after leaving school until they are well along in the 40s. But we didn't say anything about the average man's lack of interest in past events until he is pretty nearly through the self-same 40s when he begins, gradually but more and more frequently, to show by his conversation that he has entered the stage of "I remember when—."

The first evidence of this weakening appears when a man begins to tell his children about the marvelous things he did when a boy. If you take his word for it—and what else can you do?—he was a wonder. A common weakness, but you find it difficult to keep from smiling, if you're not in the slipping 40s yourself, when you remember he weighs 200 at least, has sworn off white bread, potatoes and butter, and never has taken any interest in girth control. Still, according to this walrus he was a fast runner in his distant youth.

Some of these chaps may remember, among other

phenomena of a by-gone time, the old slide rule, the slip-stick with which they were so expert in their college days. Often, in a shamefaced way, they confess they have gone back to the pencil and scratch-pad as safer and surer. Do you belong to this ilk? Confession is good for the troubled soul. If it weren't for our engraver we should have forgotten all about the old stick long years ago, as so many of you have.

It may refresh your memory a bit and brighten your corner, as Billy Sunday used to say, to sit in with the class on arithmetic for a moment or two. The slide rule isn't barred, if you know anything about it. But you're in fast company, remember.

The first figure is 60,845; quick now, what is 49-4/10 per cent of that? Good, you have it already. See that fellow with the slide rule? He is checking back to make sure he is right. Hold it, we'll give the correct answer shortly, and it has to do with age also.

Now, let's try that same figure again, 60,845—9-4/10 per cent this time, if you please, and make it snappy. No, you are wrong Johnston, this is not a mental alertness test, nothing to do with psychology, only efficiency and economy.

Now, here's an easy one, 148 subtracted from 197. Sure, it's 49, and what per cent of 197 is 49? Thanks, you are right, but there is a way to increase the per cent. Thank you, that will do for today, the class is over, or, at least, that is all figures seem to mean to some persons—write them down—check them up—put them away.

But the professor would like to say just a few words in this connection. An interesting report presented at the Traveling Engineers convention in Chicago, last month, stated that in 1920 the fuel consumption in freight service amounted to 197 pounds per thousand gross ton miles. In 1927 this figure has been cut to 148, or close to 25 per cent—some record.

There, you see, are the figures represented in that last problem. The human element, the traveling engineers, have contributed their part in making this remarkable saving in fuel consumed. But it has not all been done alone by the "Diamond Badge" engineers. Part of it, quite a large part of it, can be attributed directly to improved locomotive design, and to the fuel saving devices incorporated in those designs. Some of the saving can be attributed to the longer locomotive runs developed in recent years; some can be attributed to remote control switches. Don't forget that figures show it costs from $2.00 to $2.50 to stop a freight train, and every stop eliminated will show in the fuel bill.

Considerable saving has been accomplished in handling power at terminals and no doubt in the next few years direct steaming and further terminal improvements will create additional savings. But the thing that is bothering us still is that first problem; 60,845 is the number of locomotives in service on the Class 1 railways at the end of 1927. That 49 4/10 per cent—30,057, is the number of engines at that time that had been in service over 20 years.

That's where the question of age comes in. Think of the economic loss entailed by operating engines of this vintage when actual tests show that a locomotive constructed in 1925 showed an increase of 55 per cent in the gross ton miles hauled per hour with the same amount of fuel consumption as an engine built in 1921 operating over the same district, and that engine built in 1921 was no weakling compared with those built 20 years ago.

Do you know that that problem of 9 4/10 per cent of 60,845 which, by the way, totals only 5719, represents the entire number of locomotives that have been put in service on Class 1 railways in the last five years?

Let's not shelve this little lesson in arithmetic. Let's think it over when we make up our capital expenditure budget in 1929. Let's go a little farther and see whether it wouldn't be true economy to write off a lot of these old engines? Let's see whether it wouldn't be well worth while when we discover that the Erie, after putting into freight service last year 50 new high horsepower capacity locomotives and 30 modern switch engines increased its average gross train load 10 per cent, increased its average train speed 6.1 per cent, and decreased its fuel consumption 5.3 per cent per 1,000 gross ton miles during the first six months of this year.

Last minute news: The class moves fast. Just this side of the deadline word comes necessitating the promotion of the Lackawanna. One of that company's officials advises us that bids are requested for 20 large locomotives for fast freight service. "This is the kind of news," says he "that makes the world go round nowdays.

"And now," as the auctioneer says, "who'll be the next?"

A Good Investment

Marshall Field once said the man who puts $10,000 additional capital into an established business is pretty certain of increased returns; and in the same way the man who puts additional capital into his brains — information, well-directed thought and study of possibilities—will as surely—yes, more surely—get increased returns. There is no capital and no increase of capital safer and surer than that.

Usually Late in Life

Socrates was counted, by the oracle of Delphos, the wisest man in Greece. He laughed when he heard it—someone pulled it on him one night in a bridge game—. "The only difference between me and other men," said he, "is the fact that I am not wise and know it, whereas others are not wise and don't know it."

Bus Competition, Now Airplanes

Just One Thing After Another

By B. J. Spurling

IF THE MEN who are now managing the railroads of this grand and glorious republic are as wise as they are supposed to be they will begin immediately to study the possibilities of air transport. When motor cars and trucks appeared before the public not so very many years ago railroad men declined to take them seriously. That attitude went out of style a long time ago.

Not in precisely these words, but in words conveying the general impression created thereby, did R. C. White, assistant general manager of the Missouri Pacific at St. Louis arouse the interest of delegates attending the yearly meeting of the Southwest Master Car Builders' & Supervisors' Association and the Railway Car Department Officers' Association, held jointly September 11-13 at St. Louis. Mr. White's paper was a real contribution in a time when just such material is or should be valuable. Increasing the daily mileage of freight cars, expediting their exchange between connections, hastening necessary repairs, and a careful and intelligent study of the automotive industry in its relation to steam transportation, were other outstanding subjects discussed. So sincerely concerned were the delegates sent by both organizations, and so determined were they to do everything possible to use all facilities available to increase steam railroad efficiency that before they had been long in session the delegates agreed to combine and work in the future as one organization.

The new outfit will be called the Master Car Builders' & Supervisors' Association. The principal object to be kept in mind will be that of promoting in every proper way the more intensive use of freight cars, more constant study of interchange rules and of all departmental work not now receiving definite attention from the mechanical division of the A.R.A.

Six business sessions were held at the Hotel Statler, and they were well attended. In these meetings a number of important papers were read and addresses of real value delivered. Henry Miller, president of the Terminal Railroad Association, St. Louis, spoke on "Car Mileage and How to Increase It;" "Some Railroad Problems," by R. C. White, assistant general manager for the Missouri Pacific, St. Louis; E. H. McReynolds, assistant to the president, Missouri Pacific, St. Louis, and many others. Jo Marshall, representing the claim prevention division of the A.R.A., went over from Chicago and described the relationship between claims and freight car equipment; L. R. Wink, assistant superintendent, car department, C. & N. W., Chicago, spoke of the influence of proper and rapid maintenance of freight equipment in reducing terminal and transit delays; B. J. Huff, efficiency supervisor, C. & E. I., Danville, Ill., talked about efficiency in car shop operation, and the testing of car materials was described by J. R. Jackson, engineer of tests, Missouri Pacific, St. Louis.

Trucks, Motor Buses and Private Automobiles Now Take Much Business From Railroads.

R. C. White, assistant general manager of the Missouri Pacific at St. Louis, took a somewhat different slant toward the automotive industry and aerial transport than is taken by speakers nowdays. He believed the growth of these industries constitutes possibly the greatest danger faced by railroads. "It is true," said he, "that the railroads receive thousands of carloads of automobiles, parts, accessories and fuel for automobiles every year, and this traffic and the revenue from it offsets, in a measure, some of the traffic losses those automobiles take from the railroads the moment they are placed on the highways. But the fact remains that the automobile is and has been for years, taking away from the railroads every year a constantly increasing volume of business.

"How many of you realize that the total registration of automobiles in the United States in 1911 was 619,500? And how many realize what is involved in the figures which show that in 1927 the number of passenger automobiles registered had reached the staggering total of 20,230,429 or 171 passenger automobiles for each 1,000 inhabitants?

"The same thing applies to the airplane. At the present rate of development, the airplane will, within a few years, occupy the same position with respect to transportation, especially railroad transportation, that the automobile did

15 years ago—and now is the time to begin to think about that problem. I am not advising you to go out and learn to fly—although I believe it won't be many years until most of us are doing that. Every person in this room can remember only a few years ago, when people remarked that they never expected to step into an automobile which was regarded at that time as a rich man's plaything.

"We are going through that same period now in the air, and while we are trying to convince ourselves that the airplane never can be a serious competitor of the railroads, passenger and freight routes to connect our population centers are being established and the production of airplanes is increasing at the rate of more than 50 per cent a year over the previous year. A little mathematics will soon show you where this will lead in five years."

Officers elected were:

President, S. O. Taylor, master car builder, M. P., St. Louis; first vice president, C. J. Wymer, superintendent of the car department, C. & E. I., Danville, Ill.; second vice president, K. F. Nystrom, superintendent of the car department, C. M. St. P. & P., Milwaukee; third vice president, F. A. Starr, supervisor of reclamation, C. & O., Richmond, Va.; fourth vice president, L. R. Christy, master car builder, Gulf Coast Lines, I.-G. N., Houston; secretary-treasurer, A. S. Sternberg, master car builder, Belt Railway of Chicago.

Board of directors: Chairman, G. W. Moore, assistant superintendent motive power, Frisco, Springfield, Mo.; (two-year term) P. Kass, superintendent of car department, C. R. I. & P., Chicago; C. J. Nelson, chief interchange inspector, Chicago Car Interchange Bureau, Chicago; O. H. Clark, supervisor of car repair bills, I.-G. N., Houston; W. J. McClellan, special inspector, N. Y. C., New York; C. A. McBurney, master car builder, Transcontinental Oil Co., Tulsa; (one-year term) A. Armstrong, chief interchange inspector, Atlanta; C. M. Hitch, district master car builder, B. & O., Cincinnati, and E. J. Robertson, superintendent car department, Soo Line, Minneapolis.

John Cobbs Did This

It is late afternoon at an Atlantic Coast Line junction point and, naturally, at many other places. The passenger station, with its long platforms and multitude of tracks, is all but deserted. Behind his closed wicket the ticket agent is making up a report. The baggage master is deep in intricacies of his waybills. On a truck, out of sight behind an angle of the station, a porter is snatching a satisfying nap. From the dispatcher's office comes the crisp clicking of the telegraph instruments.

Presently the ticket agent glances at his watch, lays aside his report and opens up the ticket window with a smart crash. A truck with a solitary trunk rattles up the drive. At its coming the sleeping porter sits up, and the baggage master reaches for a check and a rubber stamp.

Overalled men appear from nowhere and saunter down midway of the platform where they sit in casual conversation. A switch engine steams up and takes a position on a siding.

Then, somewhere in the distance, the long drawn out whistle of a train. The smoke of the engine becomes visible; one of the overalled crew consults his watch and volunteers the information, "Here comes 32."

Hardly has the little local come to a stop and discharged its passengers before another train from an important branch line steams into the station. A few minutes later it is followed by another. Presently a second local arrives. In ten minutes the station is transformed into a veritable bee-hive of activity which is further increased as two main-line trains, one from the north and one from the south, come panting in.

The broad platforms are filled now with hurrying people. Redcaps stagger along with heavy hand baggage. Pullman porters replenish their supplies of ice and exchange gossip picked up all the way from New York to Tampa.

The great engines that have hauled the two main line trains puff off into the gathering dusk and their places are taken by other glistening monsters fresh from the roundhouse. The overalled inspectors, their apparent lethargy gone, move briskly along the trains, examining every piece of the running gear.

Through sleeping cars must be switched to and from the main line and branch line trains and the switcher bustles about with an important, self-satisfied manner.

Dusk fades swiftly to darkness, and the lights of the locomotives stab out into the night.

The locals are the first to go and slip away without attracting more than casual notice. Then the branch line trains, each with its sleeper, puff off down the track.

The passengers on the through trains, having had enough exercise gather in little groups about the steps of their cars, waiting for the conductors' signals, which presently send them scrambling aboard. The two trains move off simultaneously — one north and one south—and presently their tail lights are twinkling far down the tracks.

The ticket agent shuts his window and completes his report. The baggageman and the porter lock up and start home. The blue overalled inspectors have long since finished their work and disappeared. And the switch engine has bustled off into the darkness to look for another job.

There are, of course, many other trains throughout the night and morning that give the station forces plenty to do, but the busiest time of the junction's day has come and gone and the station is again apparently deserted. The only sign of life or activity is the busy clicking of the telegraph instruments in the dispatcher's office. The net return is still far lower than it should be.

Ralph Budd, president of Great Northern Railway, at Seattle, says his company is investigating the feasibility of aerial service from Seattle to western Montana, to couple up with transcontinental rail service.

He that invents a machine augments the power of a man and the well-being of mankind.—Henry Ward Beecher.

The Roadmaster Hears Candid Talks

Fine Displays at Detroit

By H. L. Lawson

The Book-Cadillac Hotel, Detroit, Where the Roadmasters and Maintenance of Way Association Held Its Sessions.

DELEGATES who attended the 46th yearly convention of the Roadmasters and Maintenance of Way Association, at the Book-Cadillac Hotel, Detroit, September 18—20, found not only an exceptionally interesting and educational program for their edification, but also a most excellent display of supplies and equipment presented by the Track Supply Men's Association. It is worth recording, too, that they took full advantage of every opportunity in both divisions of the convention, and that every demonstration given by the supply men was well attended, and enjoyed.

President J. P. Davis, of the Central Indiana, called the first session to order at 10 a.m. Sept. 18. The notable feature of this session was an address by C. G. Bowker, general manager of the Grand Trunk Western, of Detroit, who praised the roadmasters for their good work, and then proceeded to point out some of their faults with a considerable degree of candor, offering suggestions for remedying these faults as he progressed. Mr. Bowker spoke force-

Roadmasters and Engineers Must Work Together Happily if Work Is to Handled Efficiently.

fully and straight from the shoulder. His remarks were listened to carefully, and undoubtedly they gave the roadmasters something to think about.

President Davis summarized the year's activities and offered suggestions for future work. M. J. Nugent of the Delaware & Hudson, chairman of the committee on winter rail laying, read his report in which the benefits and handicaps of winter laying were discussed. The committee reached the conclusion that winter rail laying is desirable as an economical measure. A long discussion followed the reading of the paper, in which the question was threshed out thoroughly.

J. J. Desmond, of the Illinois Central, reported in the session Tuesday afternoon as chairman of the committee on programming section work. Scheduling work must be guided largely by personal experience, he said, and should be checked by keeping a progress chart. Paul Chipman, valuation engineer on the Pere Marquette, explained the methods used by this railroad in constructing permanent track, after which the session was adjourned to permit the delegates to visit the exhibition hall.

As the roadmasters passed through the equipment-filled rooms they noted that the American Chain Co. was demonstrating the Acco Improved Compromise Joint by means of a working model. The American Fork & Hoe Co. displayed tapered shims for worn rail joints and the American Hoist & Derrick Co. showed an electrical cut-out display of derrick equipment at work. Large colored photographs of the derricks were also mounted in the booth. The American Steel & Wire Co. showed samples of fence wire and patented appliances for laying end and corner posts easily.

The American Valve & Meter Co. had in operation a full sized working model of the Poage Wheel Flange and Rail Lubricator, which attracted much attention. The women guests were seldom seen without small shovels in their hands, given out at the booth of the Ames Shovel & Tool Co. The American Service Point Co., a late exhibitor, showed the Griffith Service Point Protector. The Balkwill Manganese Crossing Co. demonstrated its products by means of a miniature crossing.

The Bethlehem Steel Co. had a large exhibit in which were displayed the New Century Switch Stand, Model 51-B; Bethlehem Braced Flangeway Guard; Bethlehem Gage Rod; Bethlehem Parallel Throw Switch Stand, Model 1222; Bethlehem Hook Flange Guard Rail, Design 750; and the Bethlehem Switch Stand, Model 53-B.

The Buda 519 S. Section Car was shown by the Buda Co. The Chase Appliance Co. had several new features that attracted much attention and interest. Chief among these were the new Rail Chair Silencer, recently patented, which consists of fastening the rail to the tie with a special tie plate, or chair, enclosing resilient fiber composition sole plate and wedges that make the motion on the rail noiseless, prevents mechanical wear, permits new rail to be laid without removing the chair, insulates the rail and permits regauging without changing the position of the rail chair. This device is said by the manufacturer to make a permanent roadbed practicable.

This company likewise demonstrated the new Knab Rail Anchor Tie Plate, which has a roller or pin set into the tie plate so that both vertical and longitudinal rail movement may be controlled, keeping tie resistance equal in both directions. The Chipman Skid Spray and cans of Atlas Weed Killer were shown by the Chipman Chemical Engineering Co., Inc. The Cullen-Friestedt Co. presented motion pictures of the Burro Crane in operation.

The Duff Tie Spacer and Duff Track Jacks were on display in the booth of the Duff Mfg. Co. Thomas A. Edison, Inc. demonstrated some new and revolutionary equipment in the electrical line. The Edison Adapter, for converting oil burning switch stands into electric, attracted much comment from the delegates. This appliance consists of an electric lamp and adapter with a battery box. The lamp burns continuously for one year without attention and renewals of the battery cost but $7.50 per installation. Each battery is sufficient to handle a series of switch stands.

Among the other Edison equipment on display was the Sun Relay, an appliance that automatically controls the current to electrical switch stand lights, turning on the current automatically when the daylight fails and turning it off when the natural light reaches a certain predetermined strength. The Edison Nite Box, an electrical light for section cars etc. was likewise in evidence. Other displays were:

There Are Memories, Far Back in Life, We Are Willing to Forget. One Is of Long, Happy Days in a Gravel Pit, Down in Texas. Roadmasters Know the Story.

Fairbanks, Morse & Co. displayed a sign calling attention to the motor car shown in the lobby of the Hotel Fort Shelby.

The Fairmont Railway Motors, Inc. had the largest exhibit in the show, displaying samples of the Fairmont S-2 Section Motor Car, the M-19 "Safety Quick" Inspection Car, the M-2 Section Car and the Mudge W. S-2 Section Car.

The Hayes Track Appliance Co., bumping post model; Hubbard & Co., forged tools; Ingersoll-Rand Co., literature on tie tamper, etc.; Ingot Iron Railway Products Co., Armco Perforated Pipe literature; O. F. Jordan Co., new Type A spreader, longer, narrower and 35,000 lbs. heavier than previous models; Kalamazoo Railway Supply Co., No. 216-L Section Car; Keystone Grinder & Mfg. Co., hand and power grinders; Ludie Engineering Corp., tie plates; Maintenance Equip. Co., Blair Tie Spacer, Derrick Automatic lubricator, etc.; Mechanical Mfg. Co.; bumping post.

The National Highway Crossing Co., crossing; Nat'l Lock Washer Co., Hypower Lock Washer; Nordberg Mfg. Co., TracKrane movie; Northwestern Motor Co., photos of Casey Jones cars; Oxweld Railroad Service Co., welding equipment; P. & M. Co., anti-creepers; Positive Rail Anchor Co.; Q. & C. Co., switch point guards, derails etc.; Rail Joint Co.; Railroad Supply Co., tie plates; Ramapo Ajax Corp., switch stands and guard rails; Reade Mfg. Co., movie of Herbicide; Reliance Mfg. Co., Hy-Crome washers; Sellers Mfg. Co., tie plates, etc.

Skelton Shovel Co. Inc., Bulldog Flexteel shovels; Snap-On Wrench Co., wrenches; Syntron Co., electrical equipment; Templeton, Kenly & Co., Simplex No. 215 Surfacing and Lining Jack; Union Switch & Signal Co., hand operated switch; U. S. Graphite Co.; Warren Tool & Forge Co., forged tools; Western Wheeled Scraper Co.; Woodings Forge & Tool Co., forged tools; Woolery Machine Co., tie scorer.

Tuesday evening safety in track work was the subject of a round table discussion. C. E. Hill, safety agent of the New York Central, was the principal speaker. Wednesday morning R. H. Smith of the Norfolk & Western, read a committee report on the conservation of revenue earning equipment in maintenance work and J. F. Deimling talked on maintaining a high speed railway. Mr. Deimling is chief engineer for the Michigan Central.

C. F. Aklen of the C. M., St. P. & P., chairman of the committee on damage to rail ends, read a report on the prevention and overcoming of such conditions at the

session Wednesday afternoon. C. B. Bronson, of the New York Central, gave an address on the manufacturing and servicing of rails at the same session. Wednesday evening the Track Supply Association entertained the delegates at the yearly banquet.

A. A. Johnson of the D., L. & W., gave a report as chairman of the committee on the organization of track forces, which was followed by a discussion, at the opening session Thursday morning. Chicago was picked as the convention city for 1929. The following officers were elected at the session: President: H. R. Clarke, C. B. & Q., who acted as first vice president last year. First vice president: E. E. Crowley, D. & H., raised from second vice president. Second vice president: Elmer T. Howson, who was member of the executive committee last season.

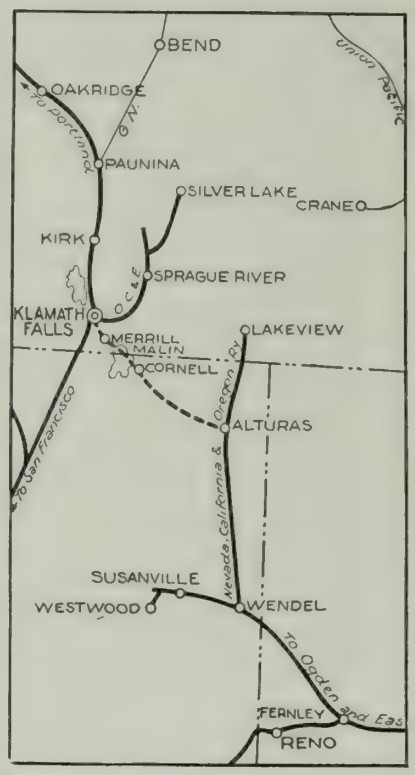
T. F. Donahoe of the B. & O., was re-elected secretary and James Sweeney of the C. & E. I., was named again to serve the association as treasurer. A. A. Johnson and P. J. McAndrews were elected to the executive committee for four year terms. Mr. Johnson is connected with the D., L. & W. and was a committee chairman last year while Mr. McAndrews of the C. & N. W., was on the executive committee with his term expiring this year.

Work Begun on New Line

Construction work was started early in the month on the 98-mile line between Klamath Falls and Alturas which will give Oregon and Northern California a new and shorter transcontinental route to the East.

Turning southeasterly at Klamath Falls from the recently completed Cascade Line or Shasta Route, the new road will be extended through Merrill, then across Tule Lake which has been drained, to Cornell and then easterly to Alturas, where connection will be made with the new standard gauged line of the Nevada-California-Oregon railroad which joins the Overland Route to Southern Pacific at Fernley, Nev.

The building of this line has been contemplated by Southern Pacific for some time and is in accordance with approval of the Interstate Commerce Commission. It will serve a fine agricultural territory in the Klamath Basin and bring rail transportation to one of the largest stands of virgin pine timber in the United States.



The Broken Line Indicates the Route of the New 98-Mile Section Being Built by the Southern Pacific Between Klamath Falls and Alturas.

"The principal advantages to be gained by the new route," said Chairman Henry W. de Forest in a New York statement, "are that on business moving to and from Klamath Basin and the valley and mountain areas of Central Oregon, Portland and south, the Alturas line affords grades and curves much more favorable to traffic than on the existing line via Roseville, with its heavy grades over the Siskiyou and Sierra Nevada mountains. Also there is the added advantage that from Klamath Falls via Alturas the distance is 211 miles shorter to Ogden than by the Roseville line.

"It is estimated that on present volume of business the annual saving through construction of the new line will amount to between $350,000 and $400,000 after the line has become seasoned. With the new business which will follow the building of the line the returns should amply justify the expenditure.

"We hope to have it ready for service by the fall of next year. It is estimated that this 98-mile link will cost about $5,750,000."

During the last two years the Southern Pacific has completed a new 209-mile main line through Arizona and the 270-mile Cascade Line through southeastern Oregon. When the Alturas line is ready for traffic the Southern Pacific will have spent approximately $62,000,000 on the three lines built into new territories.

Where Cooperation Pays

Competition between railways and automobile traffic, which has been steadily growing in Belgium, is to be turned into an intimate cooperation of both transport systems by Maurice Lippens, the Belgian minister of transportation.

Numerous automobile services have been established this season providing easy and quick transport in districts where regular transportation was either lacking or insufficient for the growing tourist traffic.

Picturesque out-of-the-way sites in Luxemburg and Flanders are now accessible. The new motorbus services had such an immediate success that the minister is working out the grouping under the auspices of the railway ministry of all existing and future autocar services throughout the country. Such lines are to work according to railway schedule time.

The hand that follows intellect can achieve.—Michael Angelo.

Just as you are pleased at finding fault, you are displeased at finding perfection.—Lavater.

A Profitable, Well-Managed Trucking Business Built Up From One Vehicle, in Rosedale, Kansas. The Office Seems to Show the Insidious Influence of A California Architect.

A Little Truck Business That Grew

It's A Kansas Story

By Develle Thatcher

WE READ a great deal about the big enterprises that use trucks, the packers, the railroads, the lumber companies, and I don't know what all, but rarely does anyone say anything about the little chaps who are doing a thriving business with one or two or a dozen trucks of one kind or another. These little chaps make up a pretty sizeable total in the volume of truck business done by the makers. You might just as well try to estimate the nation's business by counting the cities' dollars, whereas the truth is we shouldn't have much of a nation if it weren't for the small towns. You hear men talk about Chicago or Kansas City as great markets, but these cities aren't markets. The market is out in the wide open spaces you hear so much about in the movies. The cities would sell mighty little if it weren't for the towns and the quiet regions round about and over yonder.

This is the story of a little town and a business that grew into rather imposing proportions from a beginning with one little truck. Rosedale, Kansas, is a suburb of Kansas City, Mo. It is scarcely a suburb, either, for if it weren't for the invisible state line you wouldn't know when you were out of the city and into the town. A trifle quieter, thank goodness. And here, in 1919, C. Parker, whose first name may be Charles or it may be Calvin, which isn't important, started with one truck to build up a business for himself. That was about nine years ago. Now Parker has ten Diamond T trucks, from one to five-ton capacity, employs 14 drivers and helpers, and does a business worth thinking about if, perhaps, you don't know what to do for a living.

Parker's business was not builded on highly technical systems, elaborate service merchandising methods or any high-powered plan to which large transfer company's oft times attribute their success, methods which usually are too difficult to employ for the average small fleet operator. What Parker has accomplished without complicated systems and specially trained help, any operator with sufficient courage and initiative and just a fair degree of intelligence can duplicate under favorable circumstances.

Parker's trucks, washed every Saturday, at a hot water plant equipped with pumps, oiled and greased every Monday, and gassed at wholesale prices are dispatched in semi-railroad fashion. Whenever a driver has unloaded and is

ready to start away, he calls the office and learns where to pick up another load.

The fleet is standardized. All trucks run and operate the same way so that drivers may be switched about without inconvenience. Solid Goodyear tires are used on the heavy equipment, and Goodyear pneumatics on the light equipment. All accessories are standardized and are interchangeable. Standardization also facilitates repairs and service on the trucks by the firm's mechanic.

Parker believes it is economical to operate trucks of various capacities in order that the size of the truck to be used will correspond with the size of the load to be hauled. This naturally cuts down operating and maintenance costs. Often a transfer company will send out a small capacity truck for a large load or vice versa in the absence of a truck of the proper capacity. To do this in order to save buying the right kind of truck Parker believes is false economy.

The Parker Transfer company's business consists of transporting merchandise from wholesale and retail houses to railroad stations and vice versa. Virtually the same distance is covered every day, the trucks traveling along well defined and regular routes. The fleet is constantly in motion during the ten-hour stretch, and although the cost is not based on an exact mileage, it closely approximates the possible minimum expense of operation and maintenance. Operating a small fleet, the company finds personal supervision of the trucks by the drivers, mechanic and the boss meets their needs without an elaborate cost analysis system. A simple, ordinary system of bookkeeping serves the purpose adequately.

Drivers and helpers are especially trained for handling this specialized type of transportation.

Every driver knows how to save time at the station by unloading his freight himself instead of waiting for it to be unloaded. He knows how to get to and from the various stations in the quickest time. He knows how to check the bills of lading for inaccuracies, and understands that he is to call his customers in the event the bills are made out incorrectly. The trained driver is able to check damages correctly. This he must do as he is held responsible for the condition of the load after he signs his name to the bill. The transfer company is bonded at all stations.

The merchandise is picked up at the freight houses three times a week. The transfer company is responsible for storage charges which start accruing after the first 48 hours following the arrival and unloading of the goods at the stations. By careful examination, every driver knows whether the bill is signed properly, and if the correct notations have been made relative to damages or losses, so that the right persons may be held responsible.

A new driver is personally coached by an experienced man for one week and is shown all he needs to know in detail. This training in various ways at various times goes on for six months. This trained force of expert drivers and helpers who are taught to be especially courteous is one of the transfer company's biggest assets. If the firm gets an account, the service of the force is able to keep it and thus business is built up.

The force is carefully handled and treated by Mr. Parker. The men have the best of equipment and instruction, and are always pleased to do all in their power to cut down the expense of operation and maintenance of trucks and to give the highest type of service to the firm's customers.

The company has a sliding schedule of rates based on hourly work figured down on a tonnage basis. For instance in transporting, loading and unloading a certain number of barrels of oil, only one man is needed to operate a 2½-ton truck for two and a half hours. A definite rate for that load is charged for the first 2,500 pounds, and then a lower rate is charged for each hundred pounds thereafter. If it had been necessary to use two men, of course the rate would be correspondingly higher.

The Parker firm hauls for some of the largest concerns in United States, such as the Great Atlantic & Pacific Tea Co., Dupont Powder Works, and the American Linseed Oil company.

A two and a half-ton truck uses five gallons of gasoline a day over comparatively smooth highways, and travels from 35 to 40 miles. Six quarts of oil are put in the crank case every Monday. After being used seven days this is drained and replaced by another fresh supply of high grade oil.

The success of his concern, Mr. Parker believes, is due to five factors: Courteous and efficient salesmanship; high class personnel; extra and super-service; a specialized motor transportation business; use of the best and adequate amount of equipment.

The firm occupies new and rather unique quarters at 734-36 Southwest boulevard. The building is a California tan stucco bungalow type enclosed by a neat wire fence. At the right side, back of the offices, a loading dock connects the reinforced concrete 14-car garage in the rear with the office unit. The dock is walled and roofed with corrugated iron and has a floorage of 1,020 square feet. This is used for storage of small units of freight until loads for the respective stations are ready. The garage is a reinforced concrete fireproof structure containing storage space in a compartment on what might be termed a second floor level. This space is used to store supplies and miscellaneous items. The ground floor houses a service department in charge of a mechanic who keeps all the trucks in first class working order. The buildings, site and equipment represents an investment of over $50,000.

A Funny Man On a Bus Ride

Through Texas to the Coast

By Stricklan Gillilan

LATELY I had a trip to take through various portions of the Lone Star state. I had figured from the Official Guide that in order to get to the towns where I had to spell-bind on certain nights I should have to rise at the most unseemly hours to catch steam trains. But when I got to Texas, I had a good laugh on myself.

I discovered that when you get to Texas and have somewhere to go, you ask when the next bus for that place leaves. You can go all over Texas and never see a steam train or a railroad depot. The only definition the modern native Texan has for railroad is "What you have to stop at on your bus trip." For it is a state law here as elsewhere that buses have to stop, look (at the mesquite) and listen (to the larks) whenever a railroad track is encountered, even though nothing but rust has run on the line for a good while. The big through railroad lines haul many passengers and haul them on time and in supreme comfort, but the short haul stuff is largely done by the gasoline wains that scoot continuously over the state in every direction like fiddler crabs on the beach.

The other day I rode from Ft. Worth to Stephenville, 75 miles, for $3, — straight 4-cents-a-mile charge. The next morning I rode from Stephenville (which is the capital of the turkey-raising section of Texas) to DeLeon (and don't call it de-lee-'n! Nah, dummy! It is a Day-Lay-OWN!), a distance of about 35 miles, for $1.25. Then I changed buses (leaving a Studebaker for a Buick) and rode to Eastland, with a talkative guy called Mister Black, and there I caught a big Pierce-Arrow touring car for Breckenridge where I caught a Cadillac bus for Seymour.

The rates of travel varied as much as did the makes of bus. You see, each leg of the journey (and this journey was a centipede for legs!) was a part of a long trip from some remote point to some other remote point, and they have an utterly mysterious way of charging pro rata. The next day I rode from Seymour to Abilene, 105 miles, in a Hudson touring car and the price was $4.50. Another rate nobody could explain. But as I had no fellow passengers and had to help change a tire only once on the trip, I had something of a bargain after all.

The dirt roads in that part of Texas are fine when there is no rain. But I shouldn't want to ride over them during or immediately after a deluge. The ones that are graveled are safe then, but some of the others—whoopee! Yet the drivers are the carefullest I have ever seen, and no accidents occur. Now and then (if the same road-hog is encountered who ignored their gentle moo the day before and the day before the day before that as well as on its predecessor) the driver gives one final warning squawk and takes a hind wheel hub off the fellow in front, but that is all. And the beautiful justice of it is soul-satisfying to all the motor-owners who happen to inhabit the bus at the time of the disciplining!

However, the roads today and the same roads tomorrow are two different things—yea, quite! For such road building programs you never heard of are on foot now in the same biggest of all states! Hard-surfaced roads are going to cover it like a tent, pretty soon.

When we speak of Texas as a "big" state, we do it carelessly and mechanically and without a thrill, but that is foolish! Nobody outside the state knows what a mammoth dominion it is! When you think that from Texarkana on the east to El Paso on the west is farther than from New York City to Milwaukee, you will have enough to chew on for awhile—all, in fact, that I am going to hand you at this time.

And I had an adventure in DeLeon—don't forget how I told you to pronounce it. I had lectured to quite a number of cash customers on the evenings just preceding this bus journey, and each and every one of the lecture committees had booned me with the long green "in person" instead of checks. I was literally polluted with cash. I had several hundred smackers in my pockets and was afraid every time I saw a tough-looking hombre draw nigh. But I was comforted as the town of De-

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THE HUMORIST AND THE BUS

RAILROAD men everywhere, and millions of persons not in that industry, remember the name of Stricklan Gillilan, author of that classic poem, "Off Agin, On Agin, Gone Agin, Finnigan." They will, therefore, find smiles in the recital by Mr. Gillilan of his experiences and impressions while rampaging around over the wide open spaces of the Middle West in motor buses, some of them owned and operated by railroads. The story has a sprightliness certain to be diverting to those interested in knowing what has become of the railroads' passenger traffic.

Mr. Gillilan's peregrinations led him through the big state of Texas to the Pacific Coast. In a forthcoming article he will describe another part of his journey.

The Editors.

Leon drew nigh, as I had a ten-minute vacation there and would buy a draft. So when we stopped in the town and I had met the talkative Mister Black, and had been assured he would not go to Eastland and leave me, I hurried to a bank—and in the window was a card, "Legal Holiday". Ouch!

That money began to feel more like an old man of the sea than ever. Just then I saw a wide citizen with a good-natured face under a ten-gallon hat, catercornering the public square. To him I went:

"Stranger, I'm loaded down with cold cash and am afraid to tote it around any longer. The banks are closed. Wottle-eye-do?"

He looked me over.

"How do you know you ain't talking to a professional bank-robber?"

"I do know I'm not. You may be an amateur, but so am I. As a lecturer I do a lot of the simpler and safer and opener sort of robbing, and I think we amateur robbers ought to stand together."

He didn't grin much, but his eyes twinkled a lot.

"Hey, Ivven!" he called to another citizen farther down the street.

As Evan drew near my friend said:

"This man's a banker. Maybe he can help you."

The man was Evan Barker, of the Security State Bank. He listened, looked at my identifications, looked at my face and saw I wasn't smart enough to try to hornswoggle anybody, went to his bank, unlocked it and sold me a draft payable to the National Metropolitan Bank at Washington, D. C., took my green incubus, and all was peace! I even prayed we might meet a hijacker, after that, so I could thumb my nose and twiddle my fingers in his face. That for bandits!

On a train a few days before, I got into conversation with a traveling salesman—now and then one of those birds will lay aside his reticence and talk a bit—who said:

"I am taking this train ride as a rest. I have been driving nearly every day for a year at my job, and I just got so sick of holding that steering wheel and looking at the road, I though I'd pass the buck to the railroad fellows awhile. I am certainly enjoying it! I get tired of driving and I can't ride with anybody else driving. I sprain my legs pressing down on the floor boards when we run close to anything."

And that same traveling man told me (since that, I have found that all the probabilities are that his story was literally true, and unremarkable for that country) of a stern chase with a gray wolf in one of the remoter parts of his territory.

He had seen the wolf standing looking at some sheep through the fence. It was not a coyote, but a big gray wolf. When the wolf saw the car he used bum logic and figured he could get away better where the going was smoother. He figured as the man did when the train tooted for him to get off the track: "No, sir! If I can't outrun ye on th' level you'd ketch me dam' quick runnin' up th' bank!"

That wolf settled down to a real run, never once looking back. The man gave his car all it had. The wolf humped up his back as he felt the approach of the car, and gave an extra special burst of speed. Yet he could not hold out forever. There was a thump, a jar and there lay the jumbled form of the great gray fool.

The body was given to a nearby rancher, and it was not until he reached the next town that the traveler learned he had left $50 of bounty money to a stranger! Had the killing taken place before he had reached a boundary in the vicinity, it would have been $100.

Now and then as one buses through Texas one sees a chaparral cock (pronounced shap-ar-rell, stupid!) or "roadrunner" in the highway. In the old horse and buggy days these handsome and crested birds would run for miles ahead of the rig. But not in front of a 45-mile-an-hour motor bus do they keep it up! They turn out and "give a man a chance that can run." These birds seldom take to wing. They are protected by law because of their intense insectivorousness. How's that?

I could tell you more about bus-riding. Maybe I shall when I have done some rambling around California, which I am going to do right away—maybe some in Arizona, Oregon, Washington and Montana, too!

Buy Them, Don't Fight Them

After suffering a reduction of revenues from parallel motor competition by private firms, the New Zealand government railways have entered upon an active campaign to change the competition to profit by absorbing the plant and personnel of the offending companies. To date the railways have bought 60 vehicles which were cutting into the profits materially in the districts where they were operated. The majority of the services were on two 10-mile suburban runs out of Wellington and Napier, where bitumen roads and level running made the bus a profitable undertaking. In each case the buses now run between train services, and to terminals some distance from the nearest railway station, and by routes which serve areas having no other inter-area transport.

We do not need more material development; we need more spiritual development.

We do not need more intellectual power; we need more moral power.

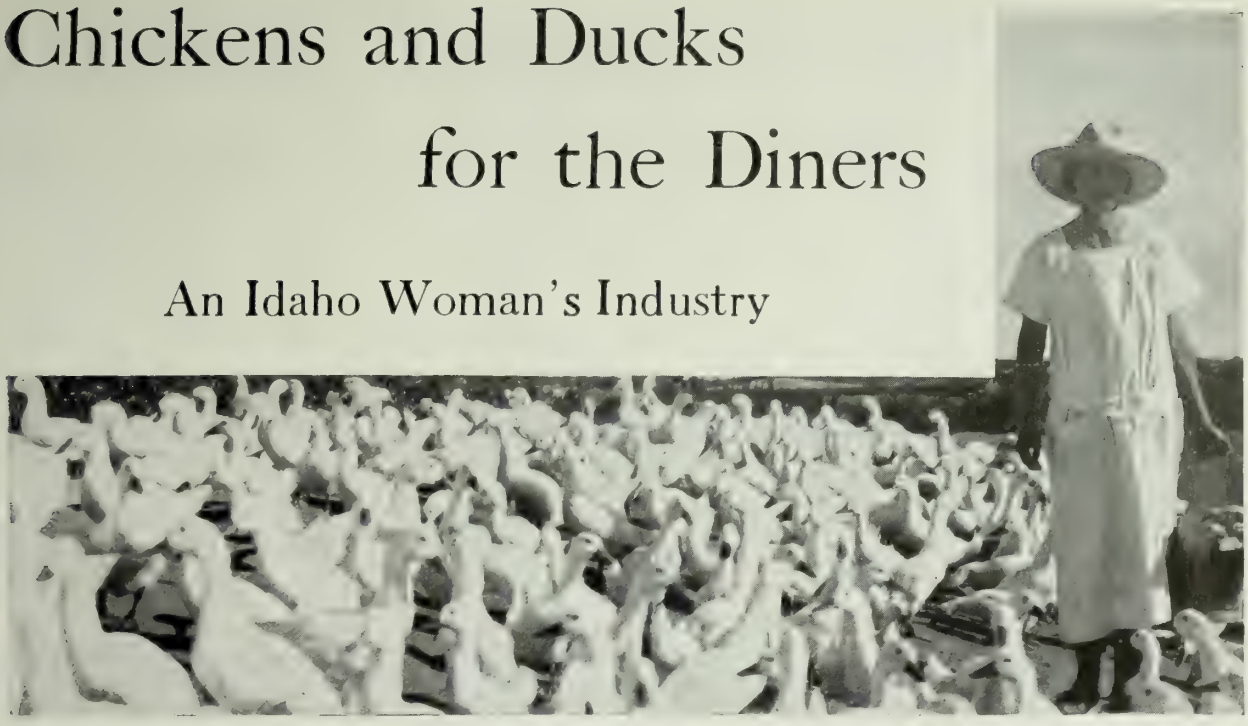
We do not need more knowledge; we need more character.

We do not need more law; we need more religion.

We do not need more of the things that are seen; we need more of the things that are unseen.—President Coolidge.

Chickens and Ducks for the Diners

An Idaho Woman's Industry



So Mrs. Gordon Bennett Made Up Her Mind She Would Supply the Dining Cars With Ducks and Things. And When a Woman Makes Up Her Mind, Well——.

By Katherine Prevost

MEN CAN do a lot of things that women can do much better. Consider the poultry business, for instance: Women—the right kind of women—always have liked to raise chickens, manage the incubators, market the hatch; hard work very often, but always interesting because pretty nearly all women like to mother things that can't take care of themselves. Whoever heard of a man mothering anything?

Up in Idaho, near Buhl, the Union Pacific had been buying its hens and ducks for years for the dining cars from a rancher. Sometimes this man didn't have just what was needed, and on such occasions he formed the habit of buying from Mrs. Gordon Bennett. No intelligent woman like Mrs. Bennett could be expected to overlook a good chance when it came along and sat down on her front stoop. Mrs. Bennett sensed a growing carelessness in this rancher's manner of filling orders, and made up her mind that a change was about due. She didn't go around talking about it; she just went to work. She prepared herself for a profitable business. She got it, too.

"I knew it would be useless," said she, "to tell the dining car people that I expected to have so many hundreds or thousands of chickens or ducks. I had to be able to say, 'I have them on hand.' And that is what I did when the time came. I got a trial order, and when the first repeat order arrived I knew I had the business.

"But the stuff that tops the market in the commission houses would never get by the rigid exactions of the dining car buyers. They must have everything a shade better than the best. They operate under no contract. They order as they wish. I receive a telegram ordering desired quantities delivered at Buhl at a given hour, whence it will go by express to the nearest dining car point, usually Ogden.

"It sound simple, but the filling of that order, on the dot, may require some strenuous adjustments. Naturally this way of doing business implies having on hand at all times the quality stuff that may be ordered. So the big incubators are kept in operation the year round, for the time has passed when broilers are in season or out of season. Winter and summer are one to the American dining public and strawberries and broiled chicken are forthcoming in midwinter, at a price, if strawberries and broiled chicken are desired."

Traveling passenger agents are no better informed than Mrs. Bennett on the forthcoming conventions, association meetings and conferences of every kind which draw increasing numbers of people every year from one side of the continent to the other. She finds it profitable, too, to study the food habits of people, and her deductions check pretty closely with the character of the orders she receives. Of course they are general in nature, but they are guides which frequently save valuable time in filling an order.

"If I know for instance, that there is to be a Jewish conference in San Francisco," says this Idaho woman, "I should have in readi-

December Hatches Made Fine Capons for the Dining Car Trade in April.

ness a fine lot of ducks, and of course, many friers for the Methodist conferences. Chickens by the hundreds go into the salads served to women traveling to the club conventions, and I am certain that I am contributing a great deal this year, to the well being of numerous politicians who will be traveling here and there to attend political gatherings."

This knowledge of food habits, with a calendar of important state and national meetings, Mrs. Bennett regards as two of the most important factors of her marketing success with the dining car service, and of no less importance than her highly specialized knowledge of how to grow the birds.

Mrs. Bennett isn't worrying about reaching the limit in her dining car market. "I have only the best," she said, "and I'll always get the top price. Automobile travel is certain to cut into the dining car service, and airplane travel may further reduce it, but that will mean merely a shifting of the dining room, not a reduction in the number of customers. This number will increase, and the demands for high priced food will not diminish. There will be a growth in good hotels, to meet this demand. My next immediate step is to the Pacific Coast where I expect to make arrangements with a trans-Pacific steamship line similar to the one I have with the dining car service. The market for the best of anything is never glutted, and the price is always adequate."

Train Control by Rays

Berlin dispatches say that light rays in the near future will prevent railroad disasters if the invention of a Munich engineer named Baeseler stands the test. His device consists of a number of mirrors which, placed along the tracks, control the speed of trains and have power to halt an engine if it runs past the block stations.

As a train passes, light from the locomotive strikes the mirrors. If the section is closed the rays are transferred to a selenic cell, which becomes a conductor, closes the electric circuit and automatically puts the brakes in action.

To prevent too sudden a stoppage of the train the mirrors are placed at special distances apart. On passing the first mirror the speed will be reduced to 60 kilometers (about 37 miles) in case of danger; the second and third mirrors bring the speed down to 40 and 20 kilometers, while the fourth mirror stops the train completely.

It is declared the mirrors, which have a peculiar construction, can be used in all kinds of weather and are absolutely reliable. The invention may also be used to reduce the speed of trains when passing dangerous curves. Whether the device will be acquired by the Reichsbahn depends on the final result of the tests now being made by the technical scientific commission.

Wives Needn't Worry Now

Beginning Oct. 1 all passengers on Spanish railways, both native and foreign, must take out an accident policy at a cost of 5 per cent of the value of the ticket. The insurance is effective only within Spanish territory, and "slight accidents," injuries obtained during the halt of trains or by "major force" are all exempt from the benefits of the state policy.

In case of death beneficiaries receive 30,000 pesetas, and for total disability, 26,000 pesetas. Other indemnities range from 500 to 10,000 pesetas. Documentary evidence of the accident is necessary in order to collect.

Money derived by the railways from the system will be used first to maintain the insurance arrangement and, second, for the improvement of the railways.

But He Missed the Cat

A cat hunt is said to have caused the loss of the sight of the left eye of P. J. Wood, of Inman railroad yards. According to the story told by Wood when he went to the Grady hospital in Atlanta, Ga., for treatment, he and a friend, William Herndon, had been trying to kill a cat which had been prowling around the railroad yards. They found the cat and Herndon, who had a shotgun loaded with birdshot, fired at the feline but missed the animal and hit Wood, according to the victim. His face was badly cut on the left side and sight of the eye lost.

Human foresight often leaves its proudest possessor only a choice of evils.—Colton.

Little Stories About Big Men

John J. Esch.

DOUBTLESS there are some old time railroad officers who have thought of John J. Esch, late of the Interstate Commerce Commission, as a man who cost the railroads many millions of dollars. Many used to say this about the late Senator Cummins of Iowa, but when he died, and for some years previously, he was called the best friend they had.

There was not a great difference between the two men and their purposes. Cummins was always sincere in his efforts toward legislation affecting the carriers. He never for a moment thought of doing one thing to make life harder for them. He tried to give the people of the country laws that would insure good transportation without hobbling the railroad managements. His ideas may not always have seemed clear and constructive, but he was no radical at heart. Many a legislative enactment which the people believe necessary may not be approved by the railroad men.

John Esch went into congress with an idea put into his mind, doubtless, by the death of his brother, Benjamin, who died as a result of injuries received in a wreck when he was 21 years old, acting as an express messenger on a branch line out of Sparta, Wis. It was a wooden train, and everything was smashed to bits and burned. John Esch took the memory of that tragedy to congress with him determined that one of the chief motives in his future career should be the promotion of safety measures on railroads. Out of this determination came the bill, the first one introduced, requiring the carriers to establish automatic block signals; he introduced the first bill requiring passenger cars to be constructed of steel, or with steel underframes; he obtained in the Transportation Act of 1920 (Esch-Cummins Bill) a provision which gave the Interstate Commerce Commission authority to require carriers to install automatic train stop, or train control, devices; he was author of the Hours of Service Act, which promoted safety by limiting employes' hours of service; he was author of the Accident Reports Act; he was author of amendments to the Safety Appliances Acts, which standardized freight sill steps, handbrakes, grab irons, ladders and running boards, and also was author of many other amendments relating to safe transportation.

In the period when Esch first began to press legislation of this sort railway wrecks were frequent and of disastrous nature. Wooden cars were largely responsible for the terrible toll of death and injury that accompanied each wreck,

because they were easily telescoped and caught fire.

Today the number of wrecks has been greatly reduced, while loss of life has become small. On some great systems, last year, not a single passenger was killed. Steel cars help a lot in accounting for the change.

John J. Esch started the movement for steel cars. But when he proposed to require them by law, nobody paid much attention to him. The railways probably thought he was crazy.

After he had introduced his bill for steel cars he sent copies to railway executives throughout the country and asked their views.

None of the replies was optimistic.

"The added weight of steel cars will require heavier rails and increased motive power," said one. "The cost would be prohibitive."

"Electric lighting of steel cars would be difficult if not impossible," wrote another.

"The cars would be too cold in winter and too hot in summer," declared a third.

Notwithstanding these discouragements, Esch kept introducing his bill in each succeeding congress. Public sentiment for increased safety grew. In one of President Roosevelt's messages he recommended the legislation.

Preston Wright says that one day in 1910 Superintendent Grubb, in charge of car construction for the Pennsylvania Railroad, called on Congressman Esch in Washington and told him his road was much interested in steel car construction.

"That's fine," said Esch. "What are you going to do about it?"

Grubb replied that his road was going to build one steel car as an experiment. That first car was satisfactory. The road built others. This started other railroads. Then the Pullman Company began to show interest and started construction. The result of all this long, discouraging work was told in an article in September showing what the Pennsylvania is doing in the matter of steel equipment. And of course what that road is doing is being duplicated on practically all Class 1 lines. It is the day of steel cars.

An Informal Snap-Shot of President Storey After Shooting a Hot One Over the Plate at the Employes' Ball Game.

Men like Cummins and Esch have to live through a lot of uncomplimentary criticism while they work. The constructive ideas of the two took millions of dollars from stockholders, but they saved human life, they taught some of the recalcitrants their responsibilities toward the public, they served mightily in hastening the day of ideal transportation by rail. Labor owes them a great deal.

A Story About Storey

These unhappy, restless believers in pull and influence ought to find a lot of comfort in these little thumb-nail biographies of men whose careers disprove the theory they have been hugging to their hearts to explain their own slow progress. William B. Storey, president of the Santa Fe System, started his campaign for a place in the world about 40 years ago driving stakes for $20 a month. The only pull he had in those days was in pulling a chain around over the heated surface of the earth for the engineers, or pulling stakes to put them somewhere else.

There is only one way to win promotion, Mr. Storey says, and that is by doing a job a little better than those around you—a little better than you are expected to do it. If you need special training, don't complain because you haven't got it—get it!

"Work along. If you put one foot ahead of the other, day by day, in pursuit of a worthy object, and keep on doing it for a lifetime, the sum of your acts will be the thing you are after—achievement."

Mr. Storey says many men deliberately choose small jobs.

"One of the great shocks of my boyhood" he said once, "came when I learned that the local telegrapher in the railroad station in our town had refused promotion to the dispatcher's office. He decided to stick to his key; and the reason he gave was the added pay that dispatchers received was not sufficient to compensate him for the added responsibilities that he would have in the higher office.

"To me his decision seemed almost criminal. I saw it as a step upward. But he was thinking of his ease. That man died a telegrapher in a small station. He didn't get further because he didn't want to; or, if you like, because he didn't dare to."

He Believes in Signs

You may not be superstitious. Signs, hoodoos, hunches, fortune-tellers may have no place in your scheme of living, but of course you are too intelligent to say this or that or the other thing is impossible when you don't know anything about it. The average man wants it distinctly understood that

no one can hand him any hokum, but — well, there are moments when, deep down in your heart, you wonder whether, after all, there isn't just a grain of truth in what some old harridan whispered into your willing ear one night, in a tent, at the charity bazaar.

If there isn't anything trustworthy in fortune-telling what, do you suppose, the old squaw was telling F. E. Williamson when the cameraman sneaked up and snapped the picture shown with this bedtime story? Mr. Williamson was then vice president in charge of operation for the Northern Pacific Railway. With other distinguished guests he was attending the formal opening of a million acres of priceless land in Montana when the new line from Glendive to Brockway by way of Circle was finished and turned over to the operating forces.

Indian Fortune Tellers, It Is Said, Know Much About Invisible Things, and Some of These the Ancient Matriarch Described to Vice President Williamson. But Not a Word Did She Say About the Invisible Net Return During This Interesting Chat.

No one except the squaw and Mr. Williamson knows what was said that day, and neither will tell. The fact is interesting, however, that not very long afterward Mr. Williamson was elected executive vice president of the Burlington. Admitting that the squaw wouldn't have known the difference between an executive vice president and a book agent—which is pretty bad, we'll tell the world—isn't it fair to suppose that her prophecy had something to do with this well-deserved elevation?

But that wasn't the end of it. For a fortune-teller conversation is the life of trade, and this survivor of early Americana is said to have been extremely voluble. Indians who think they know a thing or two hidden from the rest of us now declare the squaw's peep into the future of F. E. Williamson included still more interesting things. We don't know what there is to the story but we reserve the inalienable right to tell it for what it is worth. The squaw, so rumor hath whispered, expects to see Mr. Williamson elevated still higher, along about January 1, when he is to assume the presidency of a very important western railroad whose chief executive is to become chairman of the executive committee of another equally important line. Perhaps you can figure it out. If not you might ask the squaw, or even send a line to Mr. Williamson, whose new duties on the Burlington make it necessary for him to live in Chicago for a few months.

Judge Lovett's Advice

A young man up to his ears in doubt about what he ought to do with himself put the question to an eastern editor not very long ago. This editor sent the question to Judge Lovett, chairman of the board of the Union Pacific.

"At the age of 18," wrote the boy, "with the beginnings of an education, shall I take a place at the bottom of the ladder in railroad work, or shall I make my way through a college course? On the one hand, I am told that persistence, industry and a fair brain equipment will take a man up to the top in railroading, without high education. On the other hand comes the advice of those who say no material success is worth while if one has insufficient schooling. Can you give me an authoritative decision?"

"I should say without hesitation," replied the chairman, "make your way through a college course, if by this you mean to obtain an education, to cultivate your mind, to equip yourself with knowledge of the most important facts of life which history and science afford and with the cultural knowledge which is obtainable systematically in no other way. If, however, by making your way 'through a college course' you mean to 'make' your letter, shine in athletics, get on 'the team,' seek social contacts in circles you cannot financially afford and lay foundations for life beyond your means with the resulting disappointment and unhappiness, then I do not believe it would be worth while.

"But if you have an opportunity while still young to obtain an education before you 'take a place at the bottom of the ladder' (or elsewhere) 'in railroad work' (or in any other), I strongly urge you

to seize it. You can obtain a railroad job any time, if you are not too particular about your work. An education there is only one time to get—when you are young. You will make a better track walker, station laborer, or railroad president for being a well educated man; and the time devoted to your education will not be missed by you a few years hence. Many educated young men feel that on that account they must begin far above the bottom, or rise immediately; but don't make that mistake. I am confident that the educated man will rise more rapidly in any position than the uneducated, provided he is faithful. It will not be for his college degree or certificate, but solely because he is mentally developed and better prepared for promotion and a greater variety of duties.

"Railroad officers are restricted by many laws, regulations and rules—from acts of congress and state legislatures to labor unions and walking delegates. But one vastly important right they still have and always will exercise, and that is to make their own selection of the men they will promote to carry on the business."

The Dedication at Louvain

Engineers everywhere will be interested in an article by W. K. Hatt, delegate from the American Railway Engineering Association to the dedication of the new library at the University of Louvain, Belgium, soon to be published in engineering journals. The dedication took place July 4, 1928. The new library replaces on a different site and in different design, the old library of the university burned, with its books, by the Germans in the World War, along with other university buildings and city structures.

The University of Louvain is 15 miles from Brussels. It was founded in 1426, and celebrated its 500th anniversary in 1927.

Judge Robert Lovett.

Among the 4,000 students now enrolled are about 500 taking engineering courses. Edward Dean Adams, a delegate from the United States attending the anniversary ceremonies last year, drew attention to the lack of a memorial to engineers who had lost their lives during the war. He proposed a memorial in the form of a clock and carillon as most fitted to the surroundings, Belgium having 50 or more carillons. Engineers in the United States contributed the funds for building the tower clock and carillon which has 48 bells, one for each state of the union. The largest weighs 15,646 pounds and the smallest ten pounds, a total of 31¼ tons. It is played by keyboard and pedals with electrical connections.

Telegraph Section, A.R.A. Convenes

The twelfth session of the telegraph and telephone section of the American Railway Association held in San Francisco, September 18-20, was largely attended, and was said to be the most successful ever held. Approximately 150 delegates traveled on a special train of twelve coaches from Chicago, being routed over the Chicago & North Western, Union Pacific, and Southern Pacific. The principal advantage of riding this special was the fact it permitted the committees to discuss the reports while traveling together so that it was unnecessary for the members to arrive in San Francisco a day or two before the meeting for that purpose.

Dan O'Brien, San Francisco, chief of police, gave the address of welcome at the opening session, and Robert Newton Lynch, president of the Chamber of Commerce, spoke at the banquet in the Colonial Room of Hotel St. Francis before an audience of 326, the evening of September 19. An interesting feature at the banquet was the showing of moving pictures taken aboard the special train en route through the courtesy of the Eastman Kodak Co.

The "California Method" of adjusting difficulties between public utility corporations resulting from inductive interference by electric power lines with telephone, telegraph or other utility lines, worked out under the direction of the state railroad commission, was outlined by President Leon O. Whitesell of that commission in an address before the association.

William Sproule of the Southern Pacific gave an interesting talk and welcomed the delegates. His talk brought out the many benefits of attending the meeting and showed the important part the communication department of railroads plays in railroad operation.

Paul M. Downing, vice president in charge of electrical construction and operation of the Pacific Gas & Electric Co., presented a paper entitled "Relationship Between Power and Communication Interests in California."

C. E. Fleager, assistant vice president, the Pacific Telephone & Telegraph Co., presented a paper entitled "Cooperation for the Inductive Coordination of Electric Supply and Communication Lines." Practically all the reports

brought in by the eleven committees were adopted. St. Paul was selected as the meeting place for the association in 1929. The executive officers elected are as follows:

J. McMillan, chairman, general manager of telegraphs, Canadian Pacific Ry., Montreal; J. C. Johnson, first vice chairman, general superintendent of telegraph, Pennsylvania Lines, Philadelphia; P. F. Frenzer, second vice chairman, supt., tel., Union Pacific, Omaha.

General Foremen Elect Officers

Four hundred general foremen, representing virtually every railroad in the United States and Canada, selected J. H. Armstrong of the Atchison, Topeka & Santa Fe to head the International Railway General Foreman's Association at the 22nd yearly convention at the Hotel Sherman, Chicago, September 18-21. Other appointments were:

H. B. Sunderman, Hocking Valley Railroad, first vice president; A. H. Keys, Baltimore & Ohio, second vice president; C. Y. Thomas, Kansas City Southern, third vice president; C. M. Hillman, Minneapolis & St. Louis, fourth vice president, and William Hall, secretary-treasurer. The executive committee are: F. M. A'Hearn, Buffalo & Lake Erie, chairman; C. A. Barnes, Chicago & Western Indiana; H. E. Warner, New York Central; A. T. Streeter, Big Four, and G. F. Boone, Canadian National Railways.

Importance of general foremen's efficient handling of work done on locomotives and cars in order to eliminate possible cutting off locomotives at points where other engines may not be available was emphasized by W. G. Black, mechanical assistant to the president, Erie Railroad, when he addressed the convention on "The General Foreman's Contribution to Long Runs." "The engine performance for a continued run," Mr. Black said, "means a reduction in dollars and cents."

That general foremen should not order stock unless it is actually necessary, because such an outlay would involve unnecessary capital, was pointed out by U. K. Hall, general supervisor of stores, Union Pacific System. Mr. Hall stated, however, that the extreme opposite is fully as detrimental, halting the efficiency in public service.

"The association expects to do a great deal this year," William Hall, secretary, said. "We are planning to be of greater general assistance to all railroads. The exhibits showed that many improvements are available."

A flue cutter shown by the Hunter Saw & Machine Works, attracted considerable attention, first by the racket created, and then by performance. It did its work in a few seconds, six or seven times quicker than any other method could do it.

Tool Foremen Met at Chicago

A group of the most representative railroad tool men were selected to head the American Railway Tool Foremen's Association in the 16th annual convention held at the Hotel Sherman, Chicago, September 12, 13, 14. W. Ray Millican of the Missouri-Kansas-Texas Lines was elected to the presidency. Other appointments were: H. P. Jones, Oregon Short Line, first vice president; A. A. Ferguson, Missouri Pacific, second vice president; H. L. Taylor, Baltimore & Ohio, third vice president; G. G. Macino, Chicago, Milwaukee, St. Paul & Pacific, secretary-treasurer. Those selected for the executive committee are: J. T. Jones, New York Central Lines, chairman; E. J. McKernan, Atchison, Topeka & Santa Fe; J. E. Carroll, Chesapeake & Ohio; C. A. Shaffer, Illinois Central; W. J. Davidson, Atlantic Coast Line.

The committee of standardization announced it will concentrate, during 1929, on the standardization of boiler tools, and tools and methods of reclamation of air brake material.

P. Kass, car superintendent of the Chicago, Rock Island & Pacific, spoke on the tool foreman's responsibility in maintaining equipment to take care of the rolling stock and car departments. D. C. Curtis, chief purchasing officer, Chicago, Milwaukee, St. Paul & Pacific Railroad, impressed the members with the importance of placing orders for tools that can be bought on the open market cheaper than they can be made. "In placing orders of this kind," said Mr. Curtis, "the foreman can assist the purchasing department by giving all details on the requisition, size, and if possible, catalogue number. In this manner, excess expense is eliminated by correct information."

The convention was enthusiastic throughout and the papers interesting and helpful. "The men have shown a better spirit this year than ever before," W. Ray Millican, president for 1929, said. "I believe we will have a great year of real benefit to the mechanical departments of all railroads. Exhibits of improved labor saving devices have aroused considerable interest. These displays are always educational and therefore valuable. Every foreman finds contructive suggestions important in his work, and of course goes back to it refreshed and eager."

There's a Catch Somewhere

The revenues of the Pacific Railway of Costa Rica, government-owned and operated, were $82,575 greater in 1927 than in 1926. Operating expenses were $507,248 and revenues $640,969, making a net revenue of $133,721, over a main line of only 72 miles.

Anyone can plant radishes; it takes courage to plant acorns and wait for the oaks.—Jordan.

Among the Men Who Do the Work

HERE'S a thought for today: Murl Calvert, a switchman employed by the St. Louis-San Francisco Ry., at Wichita, is president of the Employes' Club at that place. Not long ago the presidents of 32 of these clubs met at Springfield, Mo., to discuss the state of the nation, and some one, probably W. L. Huggins, Jr., chairman of the central committee, asked Calvert to say something for the good of the cause. And here is the thought this yardman gave out:

"A careless switchman can run away more business than forty men can get," he said, "and on the other hand, he can get a great deal, due to his close contact with shippers."

Employes' clubs, obviously, are intended to create and encourage good fellowship and, through efficient leadership impress the employes with the full responsibility of their jobs—responsibility, not only to themselves and their families but to the company. This means that every man should do what he can to get new business and keep what is on the books by continued good service. As consumers, purchasers of the goods sold by potential shippers, these employes can exert an important influence in getting this business. The more they get the more secure are their jobs, which is only another way of saying that if a road doesn't earn money it can't pay it cut in wages. The Frisco employes' clubs are operating efficiently. Already their membership includes about 80 per cent of the men and women employed. Just how the movement reaches into many departments is shown by the list of presidents of most of the clubs now organized:

J. C. Gravlee, conductor; Martin A. Jennings, switchman; A. G. Anderson, dist. agr. agent; A. T. Laney, conductor; N. R. Chamblee, engineer; J. J. Bernard, engineer; J. O. Armstrong, asst, engineer; E. E Carlock, office timekeeper; W. O. Moore, chief clerk to vice pres.; F. A. McClaren, telegrapher; C. E. Wright, Frisco Lines; C. M. Sasser, chief clerk to agt.; R. J. Slagle, agent; E. D. Moxton, chief clerk, frt. office; Lester Shrader, claim clerk; John Burch, yardmaster; J. J. Charles, conductor; W. F. Billings, asst. yardmaster; W. Estes, chief clerk to gen. agt.; H. M. Cloud, dispatcher; D. L. Estes, operator; J. E. King, yardmaster; F. C. Bymaster, chief clerk to S. S. Butler; W. M. Bernard, Frisco Lines; E. L. Workman, conductor; H. L. McDuffie, sta, engineer; J. W. Scabough, supt. motive power; H. H. Miller, cashier; Fay Warren, asst. yardmaster; W. L. Osborn, agent; C. F. Station, agent; Murl Calvert, switchman; Luther Booker, yardmaster; Lorotto Connor, secy. to asst. to the president; Ila Cook, clerk supt's. office; Marie Arnold, care car accountant; Cletus

Presidents of Frisco Employes' Clubs and central committee members who attended first annual conference in Springfield are, kneeling: Chester C. Kratky, St. Louis; J. E. King, Okmulgee; J. J. Charles, Monett; W. L. Huggins, Jr., chairman central committee; Fay Warren, Tulsa; N. R. Chamblee, Dora.

Standing from left to right: D. L. Estes, Oklahoma City; W. Estes, Muskogee; R. J. Slagle, Jonesboro; H. L. McDuffie, Sherman; W. L. Osborne, Thomas; H. W. Miller, Thayer; J. O. Armstrong, Ft. Scott; Loretto O. Connor, St. Louis; C. F. Staton, Vernon; John Burch, Kansas City; Martha C. Moore, associate editor, Frisco Magazine, St. Louis; F. C. Bymaster, St. Louis; Marie Arnold, Springfield; E. L. Workman, Sapulpa; Ila Cook, Chaffee; E. E. Carlock, Ft. Smith; Murl Calvert, Wichita; D. D. Moxton, Joplin; J. C. Graylee, Amory; H. M. Cloyd, Neodesha; M. A. Jennings, Birmingham and Luther Booker, Carbon Hill.

Other presidents not appearing in the picture include: A. G. Anderson, Blytheville; A. T. Laney, Clinton; J. J. Bernard, Enid; W. O. Moore, Ft. Worth; F. A. McClaren, Henryetta; C. E. Wright, Hobart; C. M. Sasser, Hugo; Lester Shrader, Lawton; W. M. Bernard, Salem.

Price, clerk frt. office; H. A. Rogers, freight conductor; J. R. Holland, operator clerk; John F. Neal, ticket agent; Wilkie W. Wier, care P. W. Conley, supt. term.; H. R. Smyer, agent.

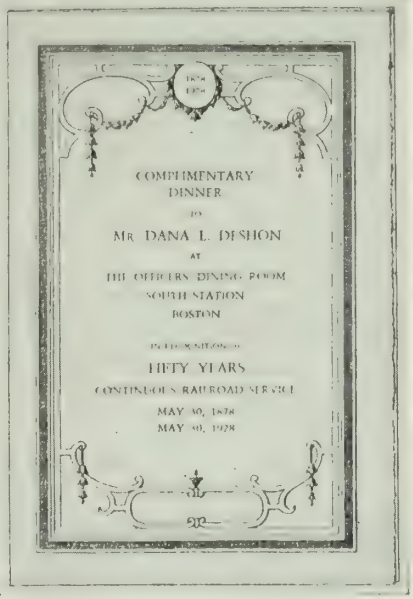
A central committee has charge of all this organization work among employes. Of this committee W. L. Huggins, Jr., is chairman; the members are J. W. Nourse, general passenger agent; W. B. Wells, assistant freight traffic manager, and C. C. Kratky, chief clerk to President Kurn, the president's personal representative in such activities.

The Reward of Loyalty

We all know, of course, that no one man makes a railroad; no one man is responsible for its success or failure, its rise or decline in public estimation. A railroad is made by everyone on the payroll.

But there is one man, to a certainty, who has it within his power to spoil a railroad's chances for getting the public's good opinion, to ruin a traveler's journey at the very outset, and this is the ticket agent. The late Howard Elliott, chairman of the board of the Northern Pacific Railway, whose death was recorded last month, said some mighty pertinent things about the ticket agent in one of his talks a year or two ago. Mr. Elliott believed this employe and in the same degree the station agent, the two most important men in a railroad's service. Whatever impression a patron gets of a road's value begins at the ticket window or the freight station. If the clerk is a grouch, slovenly, ignorant, and sometimes he is all three alas, the road has absolutely no chance in the world. Such a clerk is a liability.

What a wonderful experience it must have been to serve as a ticket seller for 50 years and in that lifetime not only gain the sincere respect of the public, but keep also the high regard of superior officers and associates. Think of all the ungenerous, ill-tempered, unmannerly customers a ticket seller sees at his window in 50 years! Think of the fine poise, the mental integrity, the all 'round self-respecting attitude of a man big enough to live through such things, and at the end of the long term to find himself the guest of his company at a complimentary


COMPLIMENTARY
DINNER
TO
MR. DANA L. DESHON
AT
THE OFFICERS' DINING ROOM
SOUTH STATION
BOSTON
FIFTY YEARS
CONTINUOUS RAILROAD SERVICE
MAY 30, 1878
MAY 30, 1928

dinner, congratulated by the president himself; surely this is one of the things that makes life well worth living.

It happened, recently, to Dana L. Deshon, coupon ticket seller at South Station, Boston, as related in the New Haven's little magazine, Along the Line. The incident is reported here because we believe it would be a perfect fairy tale if men might hope that far away in the future a dinner might be given them for loyal service over many years. Of course a badge or a button is a very wonderful thing. You may pass it on to your admiring family where it will be dumped among the treasured junk that burdens most families until one day some of the children will fling it out or swallow it; and beyond this there is nothing interesting. A button is a perfect testimonial of service, but it can't cheer or slap you on the back or wring your calloused hand. True, it singles you out in a crowd as a man of distinction and varied experience in railroading. But at a dinner given you by the company you listen to speeches about yourself filled for the most part with a lot of buncombe, and deep down in your heart you believe you deserve every word and a whole lot more. A button can't stir you up that way.

Deshon, the guest at this particular dinner in Boston, completed 50 years' service May 30. He entered the employ of the Old Colony Railroad as a ticket-seller in the Kneeland street station on May 30, 1878. He was at that Station until 1890. June 16, 1890, the Fall River Line Steamboat Express, which had left from the Kneeland street station since 1847, was transferred to the Park Square station, and Mr. Deshon was also transferred, as the Old Colony management wanted a thoroughly experienced man to handle the Fall River Line business at that point. He was at the Park Square station until Sept. 10, 1899 when the trains of the Providence division were transferred to the new South Station where he has been a coupon ticket seller from that time to the present, and completes 50 years service with an absolutely perfect record.

A feature of the complimentary dinner was the presentation of a silver plate suitably engraved, and the reading of a letter of congratulation from President Pearson, which was received with enthusiastic applause from those present.

A very handsome menu folder, in white and gold, giving also Mr. Deshon's record, was furnished by the courtesy of the dining car department, and the George H. Ellis Co. A cut of the front cover of this menu folder is shown here.

An aviation medical service is being organized by the Australian government.

All the important hospitals throughout the country will have a fleet of airplanes at their command and will be in touch by wireless with the interior small towns and desert stations.

Nimble Tongued Conductors

By B. G. Mitchell

A street car conductor able to talk to his passengers in three languages? Impossible! Perhaps so in most places, but not in Latvia, a country on the Baltic Sea.

Listen to the reason. Several hundred years ago the German knights sailed to the Baltic Sea, conquered and occupied Latvia. A good many years later Peter the Great of Russia decided he needed a seaport so he went down to Latvia and took the country away from the knights. The native Latvians were compelled to use the Russian language in their schools and in all dealings with the government. When they transacted business with their landlords and with the merchants they had to speak German. At home they spoke their own native language secretly, because it was illegal.

In 1918 when revolutions were popular, the Latvians revolted and withdrew from the Russian empire. Their own language became the legal tongue of the new republic but there were hundreds of people who knew Russian and German better. Hence conductors talking in three languages!

Some conductors in Riga, the capital of Latvia, can talk in a fourth language, English. Once an American in Riga was struggling in wretched Russian trying to ask the conductor about a certain street. The conductor finally ended the struggle by saying: "Why don't you talk United States?" The conductor had lived in America for a number of years.

The street cars in Riga have not adopted the pay-as-you-enter plan. The conductor goes through the car to collect fares. Fares are charged by zones. When the passenger pays his fare the conductor hands him a small paper ticket receipt, which he must hold until he leaves the car. At any moment an inspector may board the car and check up on the conductor. Any passenger who cannot produce his ticket receipt must pay double fare.

Big Timber in the Oregon Forests Much Used by Railroads.

Stops are made at regular stations or stopping places. These places are, on the average, two or three blocks apart. The stopping places are usually a paved area similar to our American safety zones but they are raised to the level of the lowest step of the street car. Every car must stop at every station. Two tablets are hung on the trolley wire pole at each stop, which gives the routes of the various car lines.

Evidently the merchants of Riga do not regard cards in the cars as very valuable advertising for there are very few. Special and temporary advertising bills are often pasted on the windows of the cars.

Until about three years ago Latvia had only paper money. It was of the inferior quality of those post-war days and soon became soiled and badly worn. This money was a nuisance. Because rumpled paper money is bulky the conductor had to wear a satchel, similar to the large leather handbags the women used to carry. This satchel hung from his neck by a strap. Into this bag he stuffed the money he received. Then he hunted around in its cavernous depths for the change. When Latvia changed to a metal money the conductors of that country were happy.

School children in Riga ride for half fare. Each school child carries a small booklet of two pages, similar to a passport, issued to him by the city. The booklet contains the picture of the child and also the customary data, such as date of birth, home address, grade in school. This booklet has to be shown upon payment of fare. If the booklet, by chance, is left at home, full fare has to be paid.

The News of the Month

What's Been Going on in Transportation, Railroads, Automotive, Supply, Aviation

OPERATIONS on a national scale are indicated in the plans of the Western Air Express, Inc., announced October 4. Reorganization under the laws of Delaware with enlarged capitalization placed at $5,000,000 was said by President Hanshue to be the first step in a much enlarged program which includes new equipment to cost more than $1,000,000.

In outlining equipment requirements, Mr. Hanshue said that a fleet of ten Fokker trimotored monoplanes, similar to those furnished the Western Air Express by the Daniel Guggenheim Fund for the Promotion of Aeronautics foi use on the model passenger airway between Los Angeles and San Francisco, is nearing completion at the New Jersey plant of the Atlantic Aircraft Corporation. The airplanes represent an investment of about $750,000.

In addition to the Fokkers, the company recently purchased one of the new Sikorsky bimotored amphibian sesquiplanes, and has a tentative order for two more. These planes represent an investment of $60,000 each.

The announcement intimated, in connection with the statement of equipment purchases, that the company may soon inaugurate a direct air passenger and express route from Los Angeles to as far east as the Mississippi River.

Western Air Express, Inc., went on a regular quarterly dividend basis October 1, 1927. Its fifth quarterly dividend of 2 per cent was distributed to stockholders October 1, this year. Western Air Express started as a closed corporation. It has never offered any stock to the public.

President Names the Fact Finders

President Coolidge has appointed an emergency board under the terms of the Railway Labor Act to investigate and report to him within 30 days regarding the wage dispute in a number of western railroads. Those named are James R. Garfield, Cleveland, O.; Walter P. Stacy, chief justice of the North Carolina supreme court; Davis R. Dewey, a professor at the Massachusetts Institute of Technology; Chester H. Rowell of Berkeley, Cal., and George T. Baker of Davenport, Iowa. Mr. Garfield is a former secretary of the interior. Mr. Rowell is an editor and formerly was a member of the California railroad commission. Mr. Baker is connected with educational work in Iowa.

The dispute affects about 70,000 conductors and trainmen on 47 railroads and their subsidiaries.

The United States Board of Mediation announced that the newly created emergency board would convene in Chicago Tuesday, October 2, to begin its investigation.

Fast Time by Electric Line

The Chicago North Shore & Milwaukee Railroad for the second successive year holds international honors as the fastest interurban electric railroad in North America. The record was established Sept. 27 with the awarding of the Electric Traction Speed Trophy at the 47th yearly convention of the American Electric Railway Association at Cleveland. The trophy was won last year also by the Chicago North Shore & Milwaukee.

Official records based on operations during the past year show that this road leads all other interurban electric railroads both in elapsed and running time. Trains operating over 87.19 miles of track between Chicago and Milwaukee established records of 53.9 miles an hour, not including stops, and 41.8 miles an hour, including 14 regular schedule stops.

Second honors both in the running and elapsed time among the 24 contenders for the speed trophy were won by the Chicago South Shore & South Bend with records of 52.8 miles an hour, not including stops, and 41.44 miles an hour, including 14 regular scheduled stops. Third honors in running time went to the Chicago Aurora & Elgin with the record of 59.9 miles an hour.

Spotless Town Gets An Airport

A commercial airplane service for the territory including Santa Barbara, Santa Maria and San Luis Obispo has been organized by G. Allan Hancock, Los Angeles millionaire. A base for the airline has been established at Santa Maria and it will be known as the Santa Maria Air Lines, Inc.

Hancock operates two planes of his own and has many business interests in the Santa Maria Valley. Believing that the community needs airplane service, R. W. Stephens, attorney for Captain Hancock, explained, he established a flying field and made arrangements for the purchase of passenger and freight planes. In addition, a school for aviators will be established and instructors employed.

President Gray and Party on Tour

C. R. Gray, president, and C. B. Seger, chairman of the finance committee of the Union Pacific System, making a yearly tour of inspection, spent several days in Los Angeles and vicinity the latter part of September and the first week of October. The party started October 5 for Albin, Wyo., to attend the dedication of the North Platte cut-off. The tour, Mr. Gray said, was for the purpose of checking up improvements which have been under way for six years, and now are about complete.

"I refer," said Mr. Gray, "to the expenditure of $15,000,000 which has gone into a large part of the line between Los Angeles and Salt Lake City which is now virtually new. Cuts and embankments have been widened, new rail laid, new bridges built and curvature and grades reduced. Two hundred and fifty wooden spans between here and Salt Lake City have been changed to steel. Here at the door of Los Angeles two large new bridges are being constructed, one over the Rio Hondo River at a cost of $700,000, and another over the San Gabriel River at an expense of approximately $900,000. Forty-four miles of new gravel ballast is now being completed just beyond Lund, Utah, and 25 miles is to be placed this year in the vicinity of Cima. A number of additional passing tracks have been added or lengthened, and 15 additional Union Pacific 12-driver type freight locomotives have been put into service between here and Omaha. The Caliente Tunnel has been widened and concreted preparatory for double tracking.

"An illustration of the results of this improvement policy is the fact that just a day or two ago the 9000th consecutive freight train was handled over the Union Pacific from the West into Council Bluffs without one train arriving behind time. We believe this is an unequaled record in world railroad history. The haulage totaled 450,000 cars."

In addition to Mr. Gray and Mr. Seger, the party included W. M. Jeffers, newly elected vice president in charge of operation, who assumes his duties November 1, taking the place of E. E. Calvin, retiring after 52 years' service

with the company, and J. L. Haugh, assistant to the president; E. E. Adams, assistant to the president, in charge of engineering, purchases and standards; Howard Mann, chief engineer; Alfred Pittman, editor of the Union Pacific Magazine, and W. S. Bassinger, passenger traffic manager.

The K. C. S. to Spend A Million

The Kansas City Southern announces a one million dollar improvement program for the Dowling, Texas, yards, between Beaumont and Port Arthur. This improvement program will consist of 17 miles of railroad yards, a power plant, and eight-stall enginehouse, turntables, machine shops, and other equipment including a two-story depot and office building. Quarters for laborers, white and negro, are to be erected. One hundred and three acres of land along the Kansas City Southern's right-of-way has been purchased for these improvements.

A Railroad Dollar Day

Railroad Dollar Days, said to be a radical innovation in steam road transportation, will be inaugurated by the Boston & Maine on the Columbus Day week-end, October 12, 13 and 14. A round trip ticket, good at any time during these three days, will be sold between any two points on the Boston & Maine Railroad for a one-way fare plus one dollar; children under 12, half-fare plus half a dollar.

Coming when automobile traffic congestion is at its Fall peak, the greatly reduced rates, characterized by Boston & Maine officials as the "biggest dollar's worth in the history of railroad transportation," are intended to offer the public an extra inducement to leave the automobile at home and travel by train.

Signal Section Well Attended Meeting

Three hundred and six members of the signal section of the A.R.A. met September 11, 12 and 13 at the Ambassador Hotel, Atlantic City. Addresses by E. H. De Groot, Jr., director of the bureau of signals and train control devices, I.C.C., and P. T. White, general superintendent of the Big Four, were features of the program with committee reports and discussion. The chairman of the section, C. F. Stoltz, signal engineer, Big Four, presided.

Painting Section Selects Its Officers

D. C. Sherwood, foreman painter, New York Central, West Albany, was elected chairman of the equipment painting section, mechanical division, A.R.A., at the seventh annual meeting at the Windsor Hotel, Montreal, September 11, 12 and 13. Other officers elected to serve the ensuing year are, first vice chairman, Marceau Thierry, foreman painter, Norfolk & Western, Roanoke, Va., and second vice chairman, F. B. Davenport, foreman painter, Pennsylvania, Columbus, Ohio. The next meeting will be held in Kansas City in 1929.

More than 350 persons attended the meeting. This was the 58th anniversary of the former Master Car & Locomotive Painters' Assn., founded in Boston in 1870. Addresses were made by G. E. Smart, chief of car equipment, Canadian National; Dr. Paul S. Kennedy, Murphy Varnish Co., Newark, N. J., and Chairman L. B. Jenson, general foreman of the passenger car department, C. M. St. P. & P., at Milwaukee.

An Old Organization Elects

The 72nd annual convention of the American Association of Passenger Traffic Officers, held at Colorado Springs September 25 to 27, elected these officers: J. D. Rahner, general passenger agent for the Florida East Coast, president; H. H. Melanson, general passenger traffic manager, Canadian National, vice president, and W. C. Hope, passenger traffic manager, Central of New Jersey, secretary.

Metal Congress in January

The Western Metal Congress, the Western States Metal and Machinery Exposition, and the American Society for Steel Treating will meet in Los Angeles, January 14-18. Societies cooperating in preparing the program for the several sessions are the American Society of Mechanical Engineers, American Institute of Mining and Metallurgical Engineers, California Division of Development and Production Engineering of the American Petroleum Institute, American Welding Society, Society of Automotive Engineers, Pacific Coast Electrical Association, Pacific Coast Gas Association, Institute of Marine Engineers, Metal Trades and Manufacturers' Association, Chamber of Mines and Oils, National Purchasing Agents' Association and the American Society for Steel Treating.

Getting Buses and Rails Together

Railroads were described as one of the greatest boons hotels had had in past years during a discussion of buses versus railroads at a business session of the New Jersey Hotel Asociation convention held at the Flanders Hotel, Ocean City, N. J., Sept. 11.

The rail-bus discussion came up when Samuel P. Leeds, of Atlantic City, chairman of the association's transportation commmittee, suggested that the association write Governor Moore and ask that the railroads be given a fairer chance in their competition against buses. This was strongly opposed by Max Grossman, of Atlantic City who declared buses and railroads should carry on their own fight, and that it did not behoove hotelmen to try to kill off any means of transportation that brought trade to the seashore resorts. B. J. Wood of Wildwood pictured the railroads as a contributing factor to the development of seashore resorts in the discussion that followed. He declared the hotels received little patronage from bus passengers.

Bloomfield Hullick of Asbury Park said that while the railroads made the first development of the seashore resorts, about 75 per cent of the hotel business now is transported by motor cars.

At the conclusion of the discussion it was agreed that the association cooperate with the New Jersey Chamber of Commerce in its efforts to find a more equitable relationship between buses and railroads.

Purdue Air Brake Tests

The A. R. A. has sent out an invitation to all members to attend an inspection of the air brake research and draft gear testing laboratories at Purdue University, Lafayette, Indiana, Thursday, October 11. The A. R. A. is conducting a series of tests of air brakes to discover what if any improvements can be made in freight car brakes and a test of draft gears to develop a specification covering the characteristics which such gears should have. The inspection day is provided so that all members may have an opportunity to inspect both of these tests and the procedure being used in conducting the investigations.

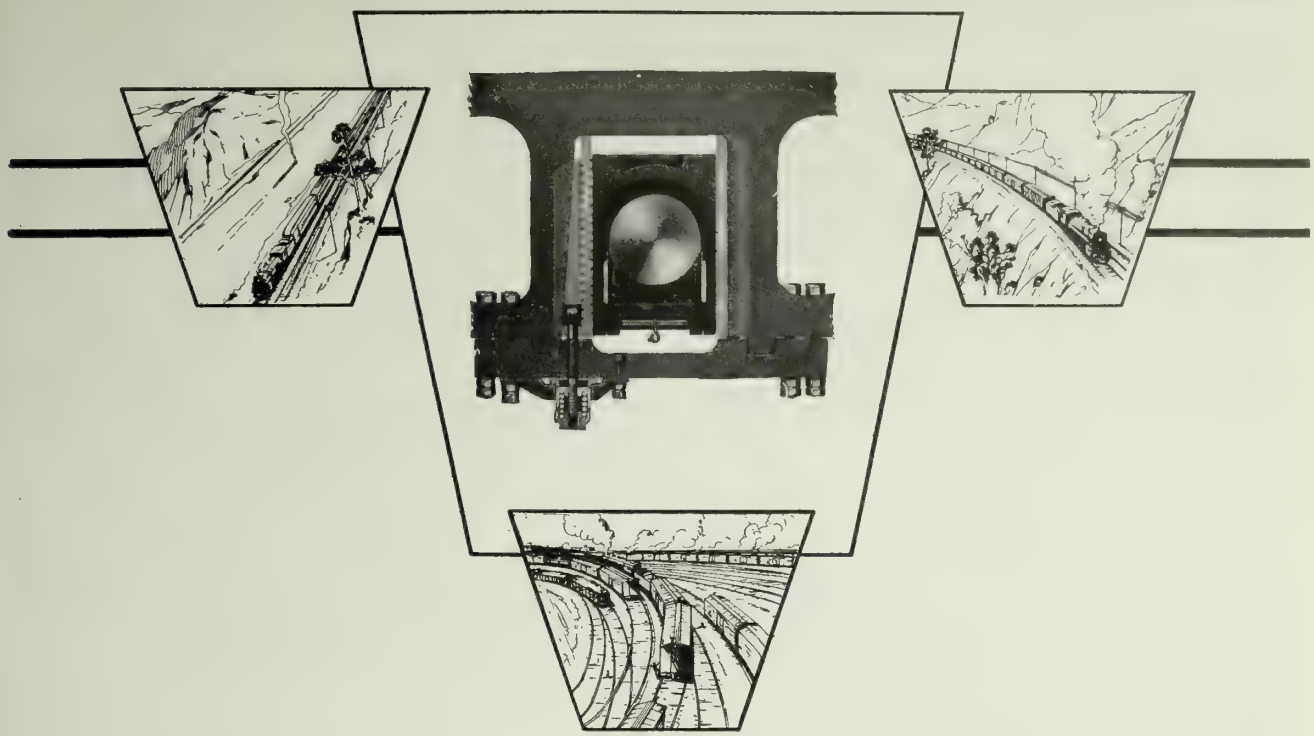
Railroading's Pretty Good After All

Eighty-seven employes of the Pennsylvania Railroad were retired from active duty October 1, under the company's pension plan, and placed upon the "Roll of Honor." Of the total number of employes retired October 1, ten had been in the employ of the Pennsylvania Railroad for 50 years or more each, while 64 have had records of 40 years' service or more.

Since the Pennsylvania Railroad System's pension plan was established, January 1, 1900, a total of 21,652 employes have been retired under its provisions. Of these, 12,588 have died, and 9,064 are still living and receiving pensions.

High Voltage for Suburban Trains

For the first time in America, electrical energy of three thousand volts direct current will be used by the Lacka-



FRANKLIN "LUBRITE" WEDGES

Make Easy Riding Engines

LONG runs have brought increased complaints of hard-riding engines.

Lubrication of shoes and wedges may be perfect when the locomotive leaves the terminal, but lubrication is often exhausted before the end of the run and the engine rides hard.

Since the engineer despite his best efforts can't keep oil where it is needed, the best thing is to eliminate the need of any oil.

This is accomplished by the use of "Lubrite", the self-lubricating shoe and wedge material.

Franklin Automatic Adjustable Wedges use "Lubrite" on all rubbing surfaces, so that a constant condition of lubrication is maintained.

"Lubrite" means easy riding and a reduction in maintenance.

FRANKLIN

RAILWAY SUPPLY COMPANY, INC.

The Locomotive Booster Capitalizes Idle Weight and Spare Steam

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO MONTREAL

wanna Railroad for propelling suburban trains on 173 miles of track to be electrified in the Northern New Jersey suburban zone. This high voltage system was adopted because it seems the best suited to meet the operating requirements applying in both suburban and main line service, in the event that later it is considered desirable to carry the electrification of the Lackawanna over the Pocono mountains to Scranton and the anthracite coal fields, 134 miles away.

Another new practice in connection with this improvement will be the installation of mercury-arc rectifiers in connection with the application of power to trains. Mercury-arc rectifiers are a recent development in the railroad electrification field and this will be the most extensive use to which they have been put in this country.

Cheerful News From the Auditor

Fourteen freight cars, each bearing approximately 49 tons of gold coin, would be required if the Class 1 railways paid last year's taxes in gold. T. O. Edwards, general auditor for the Southern Pacific, figured it up.

"Railways now are paying more than one million dollars in taxes every day," Mr. Edwards said. "Taxes paid by the Class 1 railways last year amounted to $376,110,243, or more than 6 per cent of their total operating revenues. This means that six cents out of every dollar paid by the public in passenger fares, for transportation of freight and incidental services, goes for taxes. As the public reaps the benefit of all railroad economies the lowering of railroad taxes, the single major expenditure over which railroads have no control, would be in the public interest."

Pacific Railway Club Important Meeting

The 137th meeting of the Pacific Railway Club was held September 20 at Oakland. Three more than ordinarily interesting and valuable papers were read and discussed: "Automatic Train Dispatching," by A. C. Holden, resident manager, General Railway Signal Co., Chicago; "Use of 19 Versus 31 Train Orders," by John Bell, rules examiner, Southern Pacific Co.; "Dispatching in the Olden Days," by H. W. Forman, assistant to the general manager, Western Pacific Ry. At least two of these papers will be published in this magazine in next month's issue, their late receipt preventing their being printed this month.

New Central America Line

The first railroad interconnection between any two Central American countries, under construction by International Railways of Central America, is nearing completion and is expected to be open for operation by February. The new railroad will connect San Salvador and Guatemala. The portion of the line located in Salvador is already completed and in use.

The new construction, which comprises 197 miles, provides a direct trade route from the Pacific Coast region of San Salvador to the United States and Europe. It will divert a large proportion of Salvador's heavy shipments of coffee, sugar and other commodities from Panama Canal over the new lines to the Atlantic port of Puerto and a reduction of carrying charges.

Completion of the new line will raise total mileage of International Railways of Central America from the 760 miles now in operation to 867 miles.

A Little Faster in July

The average daily movement per freight car in July was 30.4 miles, an increase of 1.3 miles above the daily average for the same month last year, the bureau of railway economics reports show. This was, however, a decrease of one-tenth of a mile compared with the daily average for July, 1926.

The daily average movement for the first seven months in 1928 was 30 miles, an increase of two-tenths of one mile above the same period last year and an increase of seven-tenths of one mile above the same period in 1926. The average load per car in July was 26.6 tons, including less than carload lot freight as well as carload lot freight. This was a decrease of four-tenths of a ton under the same month last year and one ton below July, 1926.

To Complete the Orient

Rails of the Kansas City, Mexico & Orient Railroad, from Chihuahua to Ojinaga, Mexico, were completely laid by September 15, according to announcement by W. L. Churchill, consulting engineer of the road.

This will give outlet to Mexico for irrigated farm crops, grown in the Rio Grande Valley along the border in Presidio County, cattle raised in the Trans-Pecos area and sheep from the Edwards Plateau country. A large part of this region has had no railroad facilities heretofore.

Not So Many Cars Available

Class I railroads on September 15 had 173,724 surplus freight cars in good repair and immediately available for service, the car service division of the American Railway Association reports. This was a decrease of 15,071 cars compared with September 8, at which time there were 188,795 cars.

Surplus coal cars on September 15 totaled 46,405, a decrease of 2,292 within approximately a week while surplus box cars totaled 91,922, a decrease of 7,993 for the same period.

Reports also showed 15,841 surplus stock cars, a decrease of 2,069 cars under the number reported on September 8 while surplus refrigerator cars totaled 10 588, a decrease of 2,300 for the same period.

Great Northern Equipment Plans

Information received from St. Paul indicates that the Great Northern Ry. is to build in its own shops this fall and winter equipment involving approximately $3,000,000 under a $6,000,000 equipment budget for 1929. The equipment construction now scheduled for Great Northern shops is in addition to ten mountain type engines for which $1,100,000 was appropriated a month ago. An order for 500 all steel flat cars has just been given to Siems-Stembel Co. of St. Paul, subsidiary of Standard Steel Car Co., and orders for additional flat cars and gondolas will be placed soon.

New work to be done in the Great Northern shops launched by that road several years ago, includes reconstruction and equipping with steel underframes of 2,500 box cars, construction of 500 automobile cars, 25 cabooses and ten locomotive tenders. Steel for the 2,500 underframes, for the 500 new box cars and for the 25 cabooses will be fabricated at the company's Superior shops.

Katy-K. C. S. Merger Off

The attempt to merge the Missouri-Kansas-Texas Railroad with the St. Louis Southwestern and the Kansas City Southern, instituted before the Interstate Commerce Commission more than two years ago by L. F. Loree and associates, has been formally abandoned.

In a petition to the commission, signed by President Haile of the Missouri-Kansas-Texas Co., it was declared that stock market valuation of the companies contemplated as constituent to the merger had markedly changed so that the stock exchanges planned could not be carried through.

It was said further that the commission might not be able to find the terms offered fair and reasonable as among the stockholders concerned. The petition detailed recent proceedings under the Clayton Act in which the commission refused to allow Mr. Loree to serve as a director of the Missouri-Kansas-Texas Company because of his status as an official of the Kansas City Southern Co.

Reviewing the facts and the objections arising to the merger both from

What "railroad efficiency" means

EVER since the war the railroads have been steadily raising their standards of efficiency. Year after year, new records have been made in the various phases of operation and maintenance.

In 1927 the average number of cars per freight train was 46.4, and the average freight train load was 778 tons. In October, the average distance traveled per day by each active freight car was 39.5 miles, the largest mileage in history. It is estimated that the rapidity of freight transportation is now 30 to 40 per cent faster than at the close of the war. In the passenger service a new record was made when the average mileage per passenger locomotive per day reached 117.1 miles for the month of August. These are some of the important factors of efficiency in which new records were made last year.

By supplying up-to-the-minute oxwelding service to the railroads controlling a majority of the trackage in the country, the Oxweld Railroad Service Company has contributed its share to the high efficiency of modern railroading. 15 years of experience in this field have equipped it to work successfully with any railroad organization.

THE OXWELD RAILROAD SERVICE COMPANY
Unit of Union Carbide and Carbon Corporation
UCC
New York City: Carbide and Carbon Building
Chicago: Railway Exchange

OXWELD
RAILROAD SERVICE

communities in the territory and from other railroads, it was explained that the directors of the Missouri-Kansas-Texas had resolved to withdraw the application and terminate the proceedings.

Earnings Off in Texas

The Texas railroad commission has issued a statement showing a decrease of 4.53 per cent is operating revenues of Texas railroads for the first seven months of 1928 as compared with that period in 1927. A decrease in operating costs of 6.61 per cent was shown for the same period, giving the railroads an advantage of 2.8 per cent over last year for the first seven months of the year.

This statement shows total revenues of $134,207,676 from January 1 to July 31 against $140,569,932 last year. Operating expenses for this year to July 31 were $103,938,110 compared with $111,-295,158. Net earnings were $16,360,156 compared with $15,212,229 for last year.

This statement further gave an increase in mail and express revenues at about one and one-third percent, while passenger revenues decreased about 11.65 percent and freight revenues decreased 3.55 percent.

Train Control Progress

An Interstate Commerce Commission report discloses that 112,992 miles of railroad in the United States operated under the block signal system as of January 1, 1928. Of this total 53,616 miles of road were automatic and 59,375 miles non-automatic. Compared with January 1, 1927, there was an increase of 4,150 miles in the length of road operated by automatic block and a decrease of 1,986 miles operated by non-automatic block.

Automatic trains stop or train control devices installed by commission orders as of July 1, 1928, covered 8,343 miles of road, or 15,089 miles of track, and 7,359 locomotives were equipped. Installations made voluntary by the roads covered 2,841 miles of road, 4,557 miles of track, and 768 locomotives.

Crossing Deaths Increase

During the past ten years 20,427 persons have been killed and 57,625 seriously injured in highway grade crossing accidents on major steam railroads. The figures do not include grade crossing accidents occurring on smaller steam railroads or on electric and oil lines.

These figures were made public by the American Road Builders' Association as part of its national highway safety campaign. The association points out that while the number of fatalities has increased steadily since 1918, the comparative number of deaths has been decreased. In 1918 a total of 1,852 persons were killed in these accidents as compared with 2,371 in 1927. In 1927 there were 0.94 persons killed to each 10,000 motor vehicles as compared with 1.84 persons in 1918.

At the beginning of 1927, there were 206,533 unprotected crossings in the United States. In addition, 6,148 crossings were protected by gates, 7,760 were guarded by watchmen, 6,421 had both audible and visible signals, 5,308 were guarded by audible signals only, and 2,-204 had visible signals only. Of the 235,138 grade crossings in the United States, only 27,747 had any kind of protection.

Ton Miles Under 1926

The volume of freight traffic handled by the Class I railroads in July this year amounted to 39,196,482,000 net ton miles, says the bureau of railway economics. This was an increase of 827,-221,000 net ton miles or 2.2 per cent over July, 1927, but a decrease of 2,520,-769,000 net ton miles or six per cent under the same month in 1926.

In the eastern district there was a decrease of 1.2 per cent in July, 1928, compared with the same month last year, in the volume of freight traffic, while the southern district reported a decrease of 7.8 per cent. The western district reported an increase of 10.7 per cent.

For the first seven months in 1928 the volume of freight handled by the Class I railroads amounted to 263,032,-398,000 net ton miles. This was a decrease of 9,358,890,000 net ton miles or 3.4 per cent below the corresponding period last year and a decrease of 5,-817,571,000 net ton miles or 2.2 per cent below the same period in 1926.

Railroads in the eastern district for the seven months period this year reported a decrease of 7.2 per cent in the volume of traffic compared with the same period in 1927, while the southern district reported a decrease of 8.4 per cent. The western district reported an increase of 4.2 per cent.

Revenue Loading Increases

Loading of revenue freight for the week ended September 15 was the greatest for any one week so far this year, amounting to 1,138,312 cars, according to the car service division of the American Railway Association. This was an increase of 147,270 cars above the preceding week this year, when loadings were somewhat reduced owing to the observance of the Labor Day holiday. The total for the week of September 15 was also an increase of 10,669 cars over the same week in 1927 but a decrease of 40,947 cars below the same week two years ago.

Miscellaneous freight loading for the week totaled 460,398 cars an increase of 12,067 cars above the corresponding week totaled 460,398 cars, an increase of same week in 1926. Coal loading totaled 180,678 cars, a decrease of 2,133 cars below the same week in 1927 and 25,-400 cars below the same period two years ago. Grain and grain products loading amounted to 57,014 cars, a decrease of 3,641 cars below the same week last year but 7,437 cars above the same week in 1926. In the western districts alone, grain and grain products loading totaled 43,356 cars, a decrease of 1,914 cars below the same week in 1927. Live stock loading amounted to 34,336 cars, an increase of 2,571 cars over the same week last year but 5,207 cars below the same week in 1926. In the western districts alone, live stock loading totaled 26,530 cars, an increase of 2,655 cars compared with the same week in 1927.

All districts reported increases in the total loading of all commodities compared with the same week last year except the Pocahontas and southern, which showed decreases, but all except the central western and southwestern reported decreases compared with the same period two years ago.

Fare Increase Goes to U. S. Supreme Court

The United States Supreme Court is to be asked to pass upon the long disputed right of the Los Angeles Railway Co. to increase its fare from five to seven cents. Legal forces of the state railroad commission and the city of Los Angeles have obtained an injunction restraining the company from enforcing the increase until the highest court has passed upon the appeal. This appeal is from a recent federal district court order authorizing the fare increase on the grounds that the present rates, as fixed by the railroad commission, are confiscatory. It was necessary that the federal district judge make an order allowing the appeal before it could be presented to the United States Supreme Court.

The original stay restraining the company from increasing fares at once was for ten days. It was granted with the understanding that it would give sufficient time for the city and commission to ask the United States Supreme Court for a longer stay pending a determination of the appeal.

When it was shown that a hearing on the petition to the United States Supreme Court on application for a longer stay cannot be had before October 15, Judge James extended the stay until that date.

Fairmont AND Mudge
Railway Motor Cars

LEADERSHIP

Leadership takes upon itself grave responsibilities:

It demands, first of all, setting the character for the industry; this Fairmont has done for over 18 years.

It demands that not only quality but progress be maintained consistently; in this, Fairmont has consistently been in the forefront, leading in motor car development and construction; in engineering; in service.

It demands that the products be preferred by practical, competent critics. Fairmont is preferred by the men on the road.

It demands widespread acceptance, recognized superiority. Fairmont has the largest number of cars in use . . . over half of all cars used . . . and more than all other makes combined.

These have made for Fairmont Leadership, for Fairmont Preference, the vital results of Performance and Satisfaction.

FAIRMONT and MUDGE PRODUCTS

Section Motor Cars
A2—M2—S2—M14—WS2

Inspection Motor Cars
E14—C1—M19—MM9

Weed Mowers and Discers
M24—M23

Weed Burners
B(M27)—C(M27)

Gang and Power Cars
AT2—MT2—ST2—WS3

Push Cars and Trailers
T1—T2—T3—T12
T20—T24—T25

Roller Axle Bearings
Ringseald-Axlsaver
Bower—Hyatt—Timken

Motor Car Engines
QB PHB
PHA—QHB and W

Wheels and Axles

FAIRMONT RAILWAY MOTORS, INC.

General Offices: FAIRMONT, MINNESOTA *General Sales Offices:* CHICAGO, ILLINOIS

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BALDWIN LOCOMOTIVE WORKS, *Foreign Representative*

THE RAILROAD WORLD KNOWS

Railway Construction

Tracks and Yards

ALABAMA.—The Central of Georgia will spend about $120,000 grading the 11,700 feet of track to serve the new coal mines in St. Clair county. Contract has been awarded to the Brooks-Callaway Co., Atlanta.

FLORIDA.—The Florida East Coast has permission from the I. C. C. to construct a 9.5-mile line between Belleglade-Chosen and Lake Harbor to cost about $384,340.

—The Atlantic Coast Line has applied to the I. C. C. for authority to acquire and operate the Deep Lake, a 14-mile line between Deep Lake and Everglades.

OHIO.—A 9.12-mile line from Zanesville to Lawton, recently abandoned by the Ohio River & Western, will be acquired by the Pennsylvania, Ohio & Detroit and operated by the Pennsylvania, according to I. C. C. authorizations.

—The Hocking Valley expects to spend about $850,000 in constructing a new yard at Walbridge. The Fritz-Rumer-Cooke Co., Columbus, has a contract for the relocation of a highway. Contract for the erection of a 100,000-gallon water supply tank has not yet been awarded. The Fritz-Rumer-Cooke Co. has a contract for grading and track laying on one section of the double tracking between Longley and LeMoyne and the Sturm & Dillard Co., Columbus, has a contract for similar work on the remaining section.

—The Pennsylvania plans to start in a few weeks the reconstructing and enlarging of the Grogan yards at Columbus at a cost of $4,000,000. Five grade crossings will be eliminated. Main tracks will be relocated north of the yard.

PENNSYLVANIA.—The H. E. Culbertson Co., Cleveland, has a contract from the Pennsylvania for grading and track work on the extension between Baden and Economy. The estimated cost is $90,000.

SOUTH DAKOTA.—The Jahnig & Davis Construction Co. has the general contract for construction of the 70-mile Mound City & Eastern line between Mound City and Leola. Construction was started September 20 at Mound City and Leola. The total cost is estimated at $1,600,000.

WEST VIRGINIA.—The Pennsylvania has let a $70,000 contract for construction of culverts and bridges to eliminate grade crossings between Warwood and Short Creek to Crosoau Construction Co., Brownsville, Pa.

Buildings and Structures

ARKANSAS.—Little Rock. The Missouri Pacific has awarded a $40,000 contract to the Humes-Deal Co., St. Louis, for alterations on the Union passenger station here.

CANADA.—N. S.—Halifax. A contract has been let by the Canadian National for a station and hotel at this place to the Foundation Jupiter Co., Ltd. The hotel, to be called the Nova Scotia, will have 168 rooms. Station and hotel will be connected by an arcade. The station will be 160 by 100 feet, and of the same style as the hotel.

—Sask.—Nipawin. The Canadian Pacific plans, it is reported, the construction of a 1,840-foot, double-deck bridge north of here over the Saskatchewan River. The lower deck will be used for highway traffic.

CONNECTICUT. — New Haven. The New Haven has let a contract to Roberts & Schaefer for a gravity sand handling plant, using a steam dryer, for sanding locomotives at the Lamberton street shop.

—North Windham. The New Haven has let a contract to V. N. Famiglietti & Sons, Providence, for the substructure and deck of a new highway bridge here to cost about $50,000.

IDAHO.—Shoshone. It is reported the Oregon Short Line is to build a freight station, additional yard facilities and a $130,000 passenger station here.

ILLINOIS.—East Peoria. The Toledo, Peoria & Western has let a contract to the Austin Co., Cleveland, for buildings to house mechanical facilities here.

KANSAS.—Kansas City. The Union Pacific has let a contract to W. K. Martin, Kansas City, Mo., for a freight station here.

MASSACHUSETTS.—Boston. Tredennick-Billings Co., has a contract from the New Haven for the extension of four enginehouse stalls at Southampton street.

—Boston. J. F. Fitzgerald Construction Co. has a contract from the Boston & Albany to install four circular wet-type ash pits at its Beacon Park yard here.

—East Deerfield. The Roberts & Schaefer Co. has a contract from the Boston & Maine for a 600-ton capacity, 50-ton a day drying capacity, sand handling plant in connection with the recently completed coaling station.

—Fall River. A contract for substructure work on the bridge over Clinton street has been let by the New Haven to the Curtis-Quillen Co., Providence. The estimated cost is $30,000.

—Quincy. A contract involving about $75,000 for substructure work in connection with alterations to the West Squantum street bridge, has been let by the New Haven to Coleman Brothers, Boston.

—South Boston. Alterations and additions to a coal pocket here will be made by the New Haven at a cost of about $35,000. Contract has been let to Wilbur C. Hudson Corporation, N. Y.

MONTANA.—Glendive. The Northern Pacific has let a contract for a two-story addition to its hospital here to Edward J. Dunnigan, Inc., St. Paul. Estimated cost is $100,000.

NEBRASKA.—Gering. The old Union Pacific station here will be moved to South Mitchell. A contract has been let to E. R. Green, Hastings, for a new station and accompanying facilities.

NEW JERSEY. — Greenville. The Pennsylvania and the Lehigh Valley have awarded contracts, involving about $500,000, for a portion of the steel work on the bridge over Newark Bay.

NEW YORK.—Maybrook. Seven additional enginehouse stalls will be built here by the New Haven; cost about $550,000. The contract has been let to the H. Wales Lines Co., Meriden, Conn.

OHIO.—Columbus. This city has approved the $4,000,000 project of the Norfolk & Western to eliminate grade crossings in the eastern part of the city. Work will start immediately.

—Toledo. This city will issue $500,000 in bonds for a grade separation structure at Central avenue and the tracks of the New York Central and the Michigan Central.

PENNSYLVANIA.—Branchtown. The Bessemer & Lake Erie is planning to spend about $32,700 on additional water supply here.

—Pittsburgh. John F. Casey Co., Pittsburgh, has a contract from the Pennsylvania for the foundation of the produce warehouse being built here.

—South Philadelphia. Newhall Co., Cleveland, has a contract from the Pennsylvania for a $325,000 coal pier here.

—Tullytown. The Pennsylvania will construct a $110,000 bridge here to eliminate three grade crossings. Contract has been let to H. F. Curtis, Philadelphia.

TEXAS.—Beaumont. A 103-acre tract between here and Port Arthur has been bought by the Kansas City Southern on which it is planned to construct ter-

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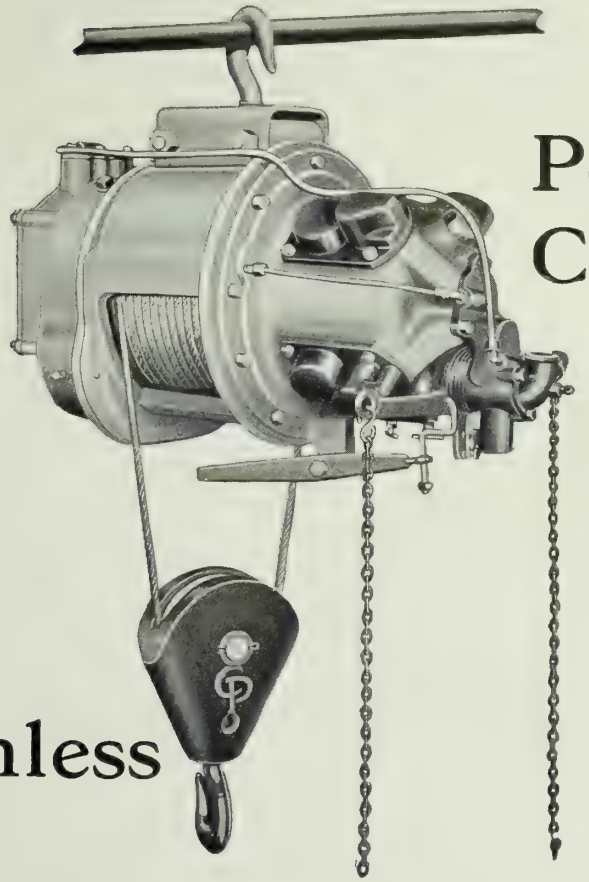

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Railroad Department

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minal improvements to cost about $1,000,000. Surveys for 17 miles of terminal tracks, an enginehouse, shops and other improvements have been made and it is planned to start construction soon. A new town, to be called Dowling, to include homes for employes and buildings for offices, has been included in the plans.

UTAH.—Cedar City. Ryberg-Sorenson, Inc., Salt Lake City, has a contract for a machine shop here from the Union Pacific.

WEST VIRGINIA.—Handley. The Chesapeake & Ohio has placed a large order with Roberts & Schaefer for coal handling equipment and parts for rehabilitating one of the old coaling stations here.

WYOMING.—Cheyenne. The construction of a viaduct over the Union Pacific tracks here is being planned, the cost of $400,000 to be born jointly by the road and the city.

Locomotive Orders

According to the A.R.A. locomotives placed in service by Class 1 roads during the first eight months in 1928 totaled 995, a decrease of 304 compared with the same period last year. Locomotives on order September 1, this year, totaled 100 compared with 207 on the same date last year.

A new low record for all time in the number of locomotives in need of repair was established on September 1. The number in need of repair on that date totaled 7,954 or 13.4 per cent of the number on line, 7.6 per cent in need of classified repairs and 5.8 per cent in need of running repairs. The record established on September 1 exceeded by 52 locomotives the previous record attained on July 1 this year. Serviceable locomotives in storage September 1 totaled 6,504 compared with 6,712 on August 15.

The Canadian National has placed orders for 55 locomotives, 20 4-8-4 Northern type and 10 switchers with the Montreal Locomotive Works, Ltd., subsidiary of the American Locomotive Co., and 15 Santa Fe type and 10 switchers with the Canadian Locomotive Co. The Great Northern has ordered 10 tenders, to be built in its own shops; Belt Railway of Chicago, five switcher from Baldwin; Bangor & Aroostook, one switcher from American; Central of Vermont, two 2-10-4 from American; Central Lafayette of Porto Rico, one Mogul from Baldwin.

The Lackawanna is inquiring for 20 4-8-4 type for fast freight service; the Denver & Rio Grande Western, 10 4-8-4 type; the Illinois Terminal, one Mikado. The Canadian National is also inquiring for five locomotives of a modified design from the Mountain type and the Canadian Pacific is expected to come in the market for about 75 locomotives.

Passenger Car Orders

Orders placed since the September issue of Transportation include the following: Maryland & Pennsylvania, one rail motor car to be equipped with two Electro-Motive Co. power plants, body to be built by the St. Louis Car Co.; Tonopah & Tidewater, one rail motor car with Electro-Motive Co. power plant, body by St. Louis Car Co.; Milwaukee, one steam motor car from Railway Locomotor Co.; Bangor & Aroostook, two combination baggage and mail cars from Osgood-Bradley Car Co.; Chicago Great Western, one 300 h.p. power plant from Electro-Motive Co. to be used in converting a McKeen motor car; Frisco, two 220 h.p. power plants from Electro-Motive Co. to be installed in existing cars.

The Canadian National is inquiring for 25 first class coaches, 16 sleeping cars and two combination baggage and smoking cars; Denver & Rio Grande Western, four dining cars; Denver & Salt Lake, one business car; Northwestern Pacific, five electric cars and five trailers; Lackawanna, two all-steel dining cars.

Freight Car Orders

Freight cars placed in service in the first eight months this year by Class 1 roads, according to reports filed with the A.R.A., totaled 42,572, a decrease of 9,702 compared with the same period last year. Freight cars installed in August totaled 6,718 compared with 7,131 in August last year. The railroads, on September 1, had 9,257 freight cars on order compared with 18,764 on the same date last year.

The Canadian National is inquiring for 1500 box cars and 30 tank cars; Central of Vermont, 500 automobile cars; Union Tank Line, from 100 to 200 tank cars of 10,000 gal. capacity and from 100 to 200 tank cars of 6,500 gal. capacity; High Point, Thomasville & Denton, 50 box cars; Freeport Sulphur Co., New York, 15 steel hopper car bodies. It is expected that the Lackawanna will soon enter the market for freight equipment.

Orders placed since the September issue of Transportation include the following: Illinois Traction System, 100 box cars with the Mt. Vernon Car Mfg. Co. and 100 composite gondola cars with American Car & Foundry Co.; Western Maryland, 100 gondola cars with Bethlehem Steel Co.; American Railroad of Porto Rico, 100 cane cars with Greeg Co., Ltd.; Sanitary District of Chicago, 20 air dump cars with Magor Car Corpn.; Cerro de Pasco Copper Corpn., 20 freight cars with American Car & Foundry Co.; New York, New Haven & Hartford, 10 transformer cars with Osgood Bradley Car Co.; Pittsburgh & Shawmut, four caboose cars with Pressed Steel Car Co.; American Oil Co., Baltimore, two three-compartment tank cars with General American Tank Car Corpn.; Great Northern, 500 flat cars with Siems-Stembel Co. The Great Northern will build in its own shops 500 new box cars, 25 caboose cars, and reconstruct and equip with steel underframes, 2,500 box cars, the steel to be fabricated at Superior shops.

Bus and Truck Orders

Recent orders and deliveries include the following: Key System Transit Co., Oakland, 20 Twin Coach urban coaches; Department of Street Railways, Detroit, 26 40-passenger metropolitan type coaches; Evanston Bus Co., four type Z 33-passenger Yellow coaches; Fort Dodge, Des Moines & Southern, three type Y Yellow parlor coaches; Illinois Power & Light Corpn., Chicago, four 21-passenger parlor coaches; Illinois Power & Light Corpn., Danville, three 21-passenger Yellow coaches; Illinois Light & Power Corpn., Ottawa, two 21-passenger motor coaches; Illinois Power & Light Corpn., Springfield, one type Y Yellow parlor coach; Iowa Railway & Light Corpn., Cedar Rapids, four 21-passenger Yellow coaches; Iowa Southern Utilities Co., Centerville, four 25-passenger Mack city type buses; Johnston Traction Co., one Yellow coach; Kentucky Carriers, Inc., subsidiary of Louisville Railway, 16 21-passenger Studebaker buses and two 21-passenger Mack buses; La Crosse & Southeastern Transportation Co., three type Y Yellow coaches; Milford, Framingham & Uxbridge Coach Co., one 29-passenger Mack city type bus; Monongahela-West Penn Public Service Co., one Yellow parlor car coach; Northampton Street Railway Co., one Mack bus chassis; Pacific Northwest Traction Co., Everett, Wash., two 29-passenger parlor observation coaches; Richmond, Fredericksburg & Potomac, one 29-passenger Mack coach; San Antonio Public Service Co., one 21-passenger Yellow city service coach; Seattle Municipal Railway, five 29-passenger Mack city type buses; Sherbrooke Railway & Power Co., two Yellow coaches; Southern Pacific Transportation Co., one 27-passenger A.C.F. parlor coach, three type Y Yellow parlor coaches and one type X Yellow parlor coach; Toronto Transportation Commission, six type W Yellow city service coaches; Waterloo, Cedar Falls & Northern, three type W Yellow parlor coaches.

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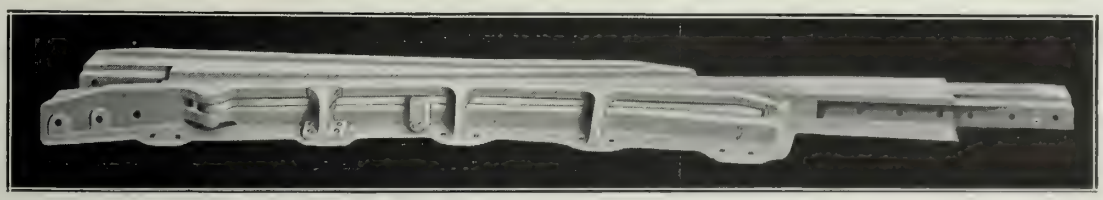

Let Us Tell You About Them

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International Newsreel.

E. E. Calvin, Retiring Vice President, Union Pacific, and W. M. Jeffers, General Manager, Taking His Place, Talking Over the Situation.

Changes in Personnel

Executive and Operating

E. E. Calvin, vice president in charge of operation of the Union Pacific System, who has been connected with that organization for more than 50 years, will retire October 31. He will be succeeded by **W. M. Jeffers** of Omaha, now general manager of the Union Pacific Railroad. Mr. Jeffers will be succeeded by **N. A. Williams,** general superintendent at Cheyenne.

Both Mr. Calvin and Mr. Jeffers began work for the Union Pacific as boys, Mr. Calvin when he was 18 years old and Mr. Jeffers at 14 years. Mr. Jeffers began as a messenger, and became a train dispatcher before he was 19. He was appointed an assistant superintendent in 1907, superintendent in 1909, general superintendent at Omaha in 1917 and general manager six months later. During the period of federal control Mr. Jeffers had charge of all the railroad terminals in Omaha, South Omaha and Council Bluffs, and also was fuel administrator at those points. For the past five years he has been chairman of the committee of general managers of railroads handling the labor disputes in the western territory. Mr. Jeffers is 52 years of age. He is a native of North Platte, Neb.

Mr. Calvin began as a messenger for the Big Four at 14 and became a telegraph operator for the Union Pacific when he was 18. He went to San Francisco in 1905 as vice president and general manager of the Southern Pacific lines west of El Paso. At the time of the San Francisco fire he had charge of the relief work sponsored by the late E. H. Harriman. During the World War period he was federal manager of the Oregon Short Line and Union Pacific and in 1920 he became vice president in charge of operation of the Union Pacific System. Mr. Jeffers has announced that Mr. Calvin will be guest of honor in Omaha, October 16, at what is expected to be one of the largest birthday parties ever arranged in the west. The date will mark Mr. Calvin's 70th birthday.

Mr. Williams, the new general manager at Omaha, was born near Laclede, Mo., and worked on his father's farm until he was 20. He began railroading as a section hand on the Burlington, and joined the Union Pacific as trainmaster at Grand Island, Neb., in 1916. He was appointed general superintendent at Cheyenne in 1925.

T. Mayhew Cunningham, Jr., general counsel of the Central of Georgia, with headquarters at Savannah, has been appointed to the newly created position of vice president and general counsel. The office of general counsel has been abolished.

Cornelius N. Bliss has been elected a director of the New Haven to succeed the late Howard Elliott.

C. C. Blanc, superintendent of terminals of the Atlantic Coast Line, with headquarters at Jacksonville, has been named superintendent of the Ridge division with headquarters at Lakeland, Fla. He will succeed **W. H. Newell, Jr.,** who has been appointed general manager of the Rockingham with headquarters at Rockingham, N. C. **C. L. Burpee** will succeed Mr. Blanc at Jacksonville.

P. J. Neff, general superintendent of the eastern division of the Missouri Pacific with headquarters at St. Louis, has been appointed assistant to the president with headquarters at that point, and has been assigned to special duties in connection with transportation matters. Mr. Neff will be succeeded by **John W. Rea,** now superintendent of the eastern divisions with headquarters at Jefferson City. **C. J. Brown,** superintendent of the Omaha division with headquarters at Falls City, Neb., will succeed Mr. Rea and will be succeeded by **J. Davis,** assistant superintendent at Little Rock, Ark. **W. P. Hayes,** superintendent of the Little Rock division, with headquarters at McGehee, Ark., has been transferred to the Joplin division, with headquarters at Nevada, Mo., succeeding **C. H. Dunaway,** who has been appointed trainmaster at Monroe, La. **C. F. Dougherty,** trainmaster at Monroe, has been promoted to assistant superintendent at El Dorado, Ark., replacing **H. E. Roll,** who has been promoted to superintendent of the Little Rock division to succeed Mr. Hayes. **W. Wicker,** trainmaster

in charge of terminals at Little Rock, has been appointed assistant superintendent at that point to succeed Mr. Davis. **J. M. Umshler,** terminal trainmaster on the Illinois Central at East St. Louis, has been appointed terminal trainmaster at Little Rock.

George Rector, New York restaurateur, has been appointed director of the newly created department of cuisine of the Milwaukee. The four leading trains of that road, the Pioneer Limited, the Fast Mail, the Southwest Limited and the Arrow, says the announcement, will have this service, never before introduced on a railroad.

H. L. Reed, general superintendent of the first district of the Rock Island, with headquarters at Des Moines, has been named acting general manager of that district to replace **Daniel Coughlin,** who has a leave of absence.

J. W. Roberts, who was recently appointed assistant vice president in charge of perishable traffic of the Pennsylvania, also has been named assistant vice president of the Long Island, with headquarters in New York.

Robert C. Hicks, traffic manager of the Georgia & Florida, with headquarters at Augusta, has been appointed assistant to the president with headquarters at that point.

A. L. Bergfeld, superintendent of

N. A. Williams

transportation of the Great Northern, with headquarters at St. Paul, has resigned and will be succeeded by **J. B. Smith,** assistant superintendent of transportation.

W. R. Stephens, secretary and assistant to the president of the Minneapolis, Northfield & Southern, has been elected vice president, with headquarters at Minneapolis.

B. W. Scandrett, general solicitor of the Northern Pacific, with headquarters at St. Paul, has been appointed vice president with general jurisdiction, subject to the president, over all departments, with headquarters at the same point. In announcing this appointment President Donnelly said that the need on the Northern Pacific of an officer having the broad general jurisdiction given to Mr. Scandrett is greater now than before because the Northern Pacific will hereafter have no executive officer in New York. Although no announcement has been made, it has been accepted generally that the office of chairman, made vacant by the death of Howard Elliott, would not be filled. Mr. Scandrett's first railroad service was from 1908 to 1911 as assistant general attorney for the Union Pacific in Kansas and Missouri at which time he was associated with his brother, H. A. Scandrett, who is now president of the Milwaukee. He came to the Northern Pacific as general attorney in 1917, was made assistant general solicitor in 1919 and general solicitor in 1925.

Simon F. Tolmie, recently elected premier of British Columbia, will succeed **W. H. Sutherland** as minister of railways of British Columbia and president of the Pacific Great Eastern.

C. H. Bristol, assistant general man-

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B. W. Scandrett

ager of the Santa Fe, with headquarters at La Junta, resigned October 1.

Financial and Legal

The Chicago, Indianapolis & Louisville announces that **Cope J. Hanley** of the firm Hanley & Hanley, Rensselaer, Ind., has been appointed general attorney, with headquarters at Chicago.

F. E. Farrell, treasurer of the Jacksonville & Havana, with headquarters at Jacksonville, Ill., has been appointed also treasurer of the Chicago, Springfield & St. Louis. **J. S. Ott** has been appointed assistant treasurer of the two roads, with headquarters at Springfield.

A. R. Barton, assistant auditor of the Chicago & Western Indiana and the Belt Railway of Chicago, has been elected auditor of the two companies, with headquarters at Chicago.

W. M. Holden, assistant secretary of the Colorado & Southern, with headquarters at Denver, has been appointed acting treasurer to succeed **B. F. James,** deceased.

E. V. Ingels has been appointed assistant controller of the Southern Pacific to succeed **P. B. Stofer,** deceased.

J. D. Osborn has been elected secretary of the Minneapolis, Northfield & Southern, with headquarters at Minneapolis.

Purchases and Stores

C. E. Kelsey, purchasing agent of the Arizona Lumber and Timber Co., Flagstaff, has been appointed purchasing agent of the Denver & Salt Lake, with headquarters at Utah Junction, Colo., to succeed **A. Knodt,** deceased.

L. N. Hopkins, purchasing agent of the Burlington with headquarters at Chicago, has retired after 43 years of service with that company. He will be succeeded by **J. R. Haynes,** assistant purchasing agent, who has been with the Burlington, in the purchasing department, for 40 years.

Traffic

The Missouri Pacific announces that **P. E. Watson,** division freight agent at Pueblo, has been appointed assistant general freight and passenger agent.

The Canadian National announces these promotions: **R. M. McBain,** freight traffic representative at Brandon, Man., has been made general agent of the freight department there; **R. L. Logan,** commercial agent at Tulsa, has been made general agent in the freight department; **R. M. Stubbs,** commercial agent at St. Paul, has been made general agent of the freight department there, and **L. C. Lynds,** city ticket agent at St. Johns, N. B., has been made general agent of the passenger department at that point.

W. L. Bailes, traveling freight agent of the Chesapeake & Ohio, with headquarters at Cincinnati, has been appointed commercial agent at Atlanta to succeed **D. H. McCalla,** promoted.

N. B. Wright, assistant freight traffic manager of the Central of Georgia, with headquarters at Savannah, has been appointed freight traffic manager with headquarters as before.

The Burlington announces the appointment of **D. E. McKee** as assistant general freight agent with headquarters at Chicago.

The Missouri Pacific announces that **H. E. Chenoweth,** special representative, with headquarters at Mexico City, has been named foreign freight representative with headquarters at St. Louis.

F. A. Reid, assistant treasurer and general freight and passenger agent of the Chicago, Springfield & St. Louis, with headquarters at Springfield, Ill., has been appointed traffic manager to succeed **A. W. Morse,** retired.

W. W. Durbin, soliciting freight agent of the Chesapeake & Ohio, at Cincinnati, has been appointed commercial agent with headquarters at Lexington, Ky.

Mechanical

J. D. Muir, assistant works manager of the Canadian Pacific shops at Montreal has been named assistant superintendent of motive power and cars with headquarters at Winnipeg.

The Missouri Pacific announces that **Walter A. Bender,** mechanical inspector at St. Louis, has been named master mechanic at Nevada, Mo., succeeding **V. H. Winnberg.**

Civil

J. M. Sills, division engineer of the Frisco with headquarters at Springfield, Mo., has resigned to engage in other business.

A. R. Fugina, signal engineer of the Louisville & Nashville, with headquarters at Louisville, retired July 1 after 18 years as signal engineer of that road.

The Southern Pacific announces that **H. A. Lathrop,** assistant engineer on the Los Angeles division, has been appointed assistant division engineer of the coast division with headquarters at San Francisco.

Obituary

Harry C. Buhoup, one of the "old guard," and for many years an outstanding figure in the railway supply field, passed away at Altadena, Cal., September 29.

He was born near Pittsburgh, Pa., May 6, 1845. He was a comrade of the late Colonel William McConway during the Civil War. Mr. Buhoup became associated with the McConway-Torley Co. in 1882 in connection with the introduction of the Janney Automatic Coupler, in fact, the names "Janney Coupler" and "Harry Buhoup" became almost synonymous. He remained with the McConway-Torley Co. up to 1922; meanwhile, and in conjunction with that affiliation, he was also one of the organizers of the National Hollow Brake Beam Co., which later became the Chicago Railway Equipment Co., and with which company he acted as second vice president, in charge of sales, from 1899 to 1905, rendering invaluable service in its behalf.

Mr. Buhoup was among the last of a group of men engaged in the earlier activities in his chosen field, in which his name and character will be revered.

Frank J. Jerome, assistant vice president of the New York Central and a former director died September 4 at Painsville, Ohio, at the age of 73.

Alexander P. Humphrey, vice president and general counsel of the Kentucky & Indiana Terminal, and consulting counsel of the Southern, died at his home in Louisville August 19, after an illness of two years. Mr. Humphrey was president and general counsel of the Louisville & Jeffersonville Bridge & Railroad Co., had been president of the American Bar Assn. for three successive years, and was a member of the law firm of Humphrey, Crawford & Middleton. He was 80 years of age.

William F. Healey, general advertising agent for the Santa Fe, died in Los Angeles September 15 following an illness brought on as a result of exposure in Siberia during the World War.

Our Market Basket

WHEN railroads prosper, not only are they able to render more efficient service, but their expenditures provide profitable employment for hundreds of thousands of workers in many industries.

Every industry, including agriculture, last year felt the benefits of railway expenditures for materials and supplies totaling nearly $1,396,000,000.

In 1927 railroads purchased 25 percent of the total bituminous coal produced in the United States, between 20 and 25 per cent of the fuel oil, 17 percent of the total timber cut, about 19 percent of the total iron and steel output, and considerable percentages of the production of other industries.

Workers kept employed in these industries by railway orders, as well as more than 1,734,000 railroad employes who last year received over $2,900,000,000 in salaries and wages, are among the principal purchasers of western products.

When railroads prosper and are financially able to make necessary expenditures for maintenance, extensions and betterments these workers are correspondingly kept busy, their wages creating greater markets for western products. Thus railroads are essential factors in *your* prosperity, no matter what you produce or create.

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We make these Chemicals for you - based on an analysis of water used in your boilers.

This is a Briquette—weighs one pound and has a minimum of moisture. Doesn't it appeal to you over the usual run of compounds?

PHILADELPHIA CHICAGO ST. LOUIS MONTREAL WINNIPEG
BUENOS AIRES MANILA AUSTRALIA

William J. Bryson, formerly assistant engineer on the Chicago & Alton and more recently assistant to the president, from which position he retired in 1900, died at Lake Placid, N. Y., September 16, aged 83.

J. Opheim, formerly general storekeeper of the Great Northern with headquarters at St. Paul, died at his home in Tacoma, August 6.

Arthur E. Stilwell, former president of the Kansas City, Pittsburgh & Gulf, died September 26 at his home in New York, aged 68. He had been in ill health for several years and retired from active business in 1916. At the peak of his career he astonished all but his intimate friends by announcing that he had been guided in his undertakings by the advice of spirits. The first road he built was the Kansas City Belt Line. It was followed by the road from Kansas City to the Gulf of Mexico. The inspiration of that undertaking, he said later, came from spirits. The same spirits, he said, warned him when he planned to build a terminal at Galveston that the city would be devastated by a storm. He swung his road away from Galveston and four days after completion of the terminal at Port Arthur, Galveston was swept by a hurricane and tidal wave. Besides his railroad activities, Mr. Stilwell was a banker and mining promoter.

Walter C. Arthurs, president and chief stock holder of the Mt. Vernon Car Manufacturing company, and for many years recognized throughout the country as a leader in business and financial affairs, died unexpectedly Sunday afternoon, September 30, while driving with his family near his summer home at Arthur's Point, Minn. Mr. Arthurs had been a resident of Mt. Vernon since the car company was organized there in 1890.

Walter C. Arthurs

Mr. Arthurs was born in Montgomery county, Illinois, the son of James M. and Emma (Cram) Arthurs. His parents were both members of old American families of pioneer stock. He received his education in the schools at Hillsboro and Litchfield and early in life began to work to make his way in the world. Like many successful men Mr. Arthurs worked first as a boy on a farm in Illinois. From the fields he entered a grocery store as a clerk, later shifted to the drug business, tried clerking in a shoe store, became a traveling shoe salesman, and at the same time took a commercial course of study. In 1887 he went with the Litchfield Car & Mach. Co. as cashier and paymaster and stayed in the work for two years. He became treasurer of the Mt. Vernon Car. Mfg. Co. in 1890. In 1897 the company was forced to go into receivership and Mr. Arthurs was appointed receiver by the court.

He held this position from 1897 to 1902 and succeeded in bringing the concern out of bankruptcy, paying its debts, greatly improving the property and turning it back to the original stockholders without sale of the property.

James E. Goodman, master mechanic of the Northern Pacific at Duluth from 1902 until 1923 died August 26 in Los Angeles, 78 years of age.

Arthur C. Irons, former general passenger agent of the Chicago Great Western, but more recently engaged in the brokerage business, died at Detroit, September 16, aged 48.

Supply Trade Notes

Chicago Pneumatic's New Foundry

To care for the increasing demand for CP engines and compressors and to assure a uniform quality in its castings, the Chicago Pneumatic Tool Co. has recently completed a large modern foundry at Franklin, Pa., where all gray iron castings for compressors and engines will be made. The buildings and equipment represent an investment of over $400,000. The equipment is modern throughout and consists in part of two cupolas, one with a capacity of 16 tons an hour and one with a capacity of 8 tons an hour; two rotary blowers; five traveling cranes, three of 15 tons capacity, one of 10 tons capacity and one of 5 tons capacity; several molding machines of various capacities from 1,000 pounds to 20,000 pounds; four squeeze molding machines; three hopper type automatic sand handling equipment; mold drying ovens; yard cranes; two large and four small core ovens and various miscellaneous equipment. A daily capacity of 30 tons is provided for with arrangements for doubling this tonnage with the probable growth of the business. The foundry building is 130 ft. wide by 220 ft. long and a storage shed has also been erected which is 60 ft. wide by 330 ft. long. This new foundry is adjacent to the main plant which consists of power plant, machine shop, erecting floors, pattern shop, offices and shipping platforms where compressors and engines are loaded directly on the railroad cars for shipment. An order of portable compressors was shipped recently that required seven cars for handling. About 225 men will be employed. The company feels warranted in making this recent expenditure because it makes possible complete supervision of every step entering into the manufacture of its products, from raw material to the completed machines. The company also has large plants at Detroit and Cleveland where pneumatic and electric tools are manufactured.

The **MacLean-Fogg Lock Nut Co.,** Chicago, announces the appointment of **W. G. Willcoxson** as sales representative.

O. B. Capps, of **O. B. Capps, Inc.,** Graybar Bldg., New York, has been appointed eastern representative of the **Prime Manufacturing Co.,** Milwaukee.

The **Chicago Pneumatic Tool Co.,** announces the appointment of **H. H. Sherman** as manager of the publicity department with headquarters at the general offices of the company in New York.

C. E. Plummer has been appointed chief chemical and metallurgical engineer of the **Robert W. Hunt Co.,** with headquarters in Chicago.

The **Roberts & Schaefer Co.,** Chicago, advises that its sales for the first eight months this year are in excess of its entire 1927 business, sales up to September 1 having increased 22 per cent over the same period last year.

The **Universal Portland Cement Co.,** announces the following appointments: **A. C. Cronkrite,** division sales manager at Chicago has been appointed assistant general sales manager; **W. L. Greenly,**

JORDAN SPREADER
"Does the Work of an Army of Men"
SNOW PLOW ★ ICE CUTTER ★ DITCHER
UNIVERSALLY STANDARD
O.F. JORDAN COMPANY
WALTER J. RILEY, PRESIDENT
EAST CHICAGO, INDIANA

JORDAN

SPREADER - DITCHER

Indispensable in mines, on railways, public works, industrial plants, etc.

Built in Standard and Narrow Gauge Sizes

IMPROVED COLUMBIA

LOCK NUTS

Made in S. A. E. Sizes for use on MOTOR BUSES

Many manufacturers consider them standard on their gas and electric equipment.

COLUMBIA LOCK NUTS

A "SELF-LOCKING-NUT"

Standard sizes and dimensions. Easily applied without waste of time or injury to threads. CANNOT shake loose. FREIGHT CARS all over the country have them on. They have stood the test of years.

COLUMBIA NUT & BOLT CO., Inc.
BRIDGEPORT, CONN.

'RALSTON BUILT'

Steel and Composite Cars

Completely rebuilding large numbers of steel cars in record time is an achievement that Ralston Steel Car Company has repeated time and time again.

This is possible only through our excellent facilities and well-balanced program, which, together with skilled workmen and competent engineers, keep the cars moving through the plant on regular schedule.

THE RALSTON PLANT is equipped to build New Cars, to Rebuild Old Cars, to Repair and to supply repair parts. All materials and work of the highest QUALITY and performed under expert Engineering Supervision.

RALSTON STEEL CAR CO.
COLUMBUS, OHIO

Horace M. Wigney

division sales manager at Duluth, Minn., will succeed Mr. Cronkrite at Chicago; Mr. Greenly will be succeeded by **E. D. McKay** of the service bureau; **Edward Quebbeman**, division sales manager for Illinois, has been appointed western sales manager, and **Harry A. Craig**, assistant to the division sales manager for Indiana, has been appointed sales manager of Illinois and Missouri.

Horace M. Wigney has been appointed manager of **Safety Refrigeration Inc.**, a subsidiary of the **Safety Car Heating & Lighting Co.**, which controls the use of Silica Gel for refrigeration in connection with transportation. Mr. Wigney was born in Chicago in 1882. He entered railroad service in the transportation department of the Illinois Central when he was 17. He was with the Pacific Fruit Express as superintendent of transportation and with the Dairy Shippers' Dispatch as vice president and later as president. In 1917, after the Dairy Shippers' Dispatch was sold to the American Refrigerator Transit Co., Mr. Wigney spent considerable time in South America studying conditions relating to railroad transportation and the movement of perishable products under refrigeration. In 1923 he became superintendent of car service of the New York Central and was later made general superintendent of transportation, which position he held until 1927 when he left to enter other business in California.

The **Ames Shovel & Tool Co.**, has moved its general offices from Boston to its factory at North Easton, Mass.

F. B. Parker, general manager of **Briggs & Turivas, Inc.**, Chicago, has been elected vice president and general manager.

The **Winston-Dear Co.**, and the **Winston Brothers Co.**, Minneapolis, have consolidated as the **Winston Brothers Co.**

The **Timken Steel & Tube Co.**, which has been incorporated by the **Timken Roller Bearing Co.**, Canton, Ohio, will take over the manufacture and sale of Timken steel and tubing and will have headquarters and mills in Canton and sales offices in Chicago, New York, Detroit, and Los Angeles. **H. H. Timken**, president of the Timken Roller Bearing Co., has been elected chairman of the new company. **M. T. Lothrop**, vice president of the Timken Roller Bearing is president; **J. W. Spray**, general manager of sales of the Timken Roller Bearing is vice president; **A. J. Sanford**, manager of steel sales of the Timken Roller Bearing is vice president in charge of sales; **J. E. Daily** is vice president in charge of operation, and **J. F. Strough**, secretary and treasurer of the Timken Roller Bearing is secretary and treasurer of the new company.

P. A. Terrell, formerly manager of the new industries division of the **Mississippi Power Co.**, has been appointed in charge of central stations and railroad sales for the **Copperweld Steel Co.**, makers of electrical rod, wire and strand products. Mr. Terrell was graduated from the Alabama Polytechnic Institute, electrical engineering, in 1917. The following nine months were spent on the General Electric test course at Schenectady. After military service as lieutenant in the Marine Corps seeing active service in Cuba and Haiti, Mr. Terrell was employed by the Alabama Power Co. in the line and substation maintenance department, becoming the assistant superintendent of the West division in 1920. He was then promoted to superintendent of the Gadsden district and to district manager of the Jasper district, but resigned this position in 1927 to become manager of the new industries division of the Mississippi Power Co.

John H. Rodger has resigned as vice president of the **Safety Car Heating & Lighting Co.**, but will continue as a

P. A. Terrell

member of the board of directors. He will be associated with the **Union Carbide & Carbon Corpn.**

The **St. Louis Car Co.**, announces the appointment of **E. S. Sullivan** as special coast representative with headquarters at San Francisco, to temporarily succeed **G. Koch**, coast agent, who is ill.

SPECIALISTS IN FORGED

Center Plates
Draw Bar Yokes
Knuckle Pins
Air Brake Pins
Brake Jaws
Journal Box Wedges
and
Miscellaneous Forgings

Send us your specifications

Steel Car Forge Company

Pittsburgh New York Chicago Baltimore

B. H. Vroman, for the last eight years district superintendent at Denver of the **Pullman Co.**, has been appointed zone superintendent with headquarters at Chicago.

R. K. Weber, vice president of the **Mt. Vernon Car Mfg. Co.**, has been elected president to succeed **W. C. Arthurs**, deceased, and will be succeeded by **H. H. Cust.**

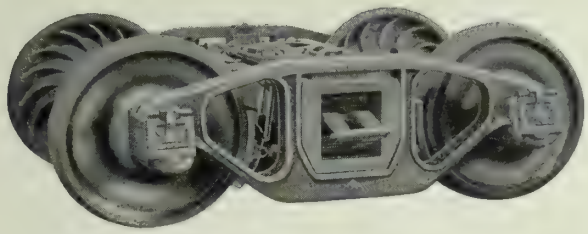
The **Cardinal Aircraft Corpn.** has been organized by the **St. Louis Car Co.** to build airplanes and parts. Capital, facilities and staff will be furnished by the St. Louis Car Co.

The **Ulster Iron Works** has appointed **W. W. Fetner** southwestern representative, with headquarters in St. Louis.

J. F. Hoerner, assistant to the vice president of the **Baldwin Locomotive Works** at New York, has been appointed manager in charge of the New York office of the Baldwin Locomotive Works and the **Standard Steel Works Co.**, to succeed **James McNaughton**, deceased.

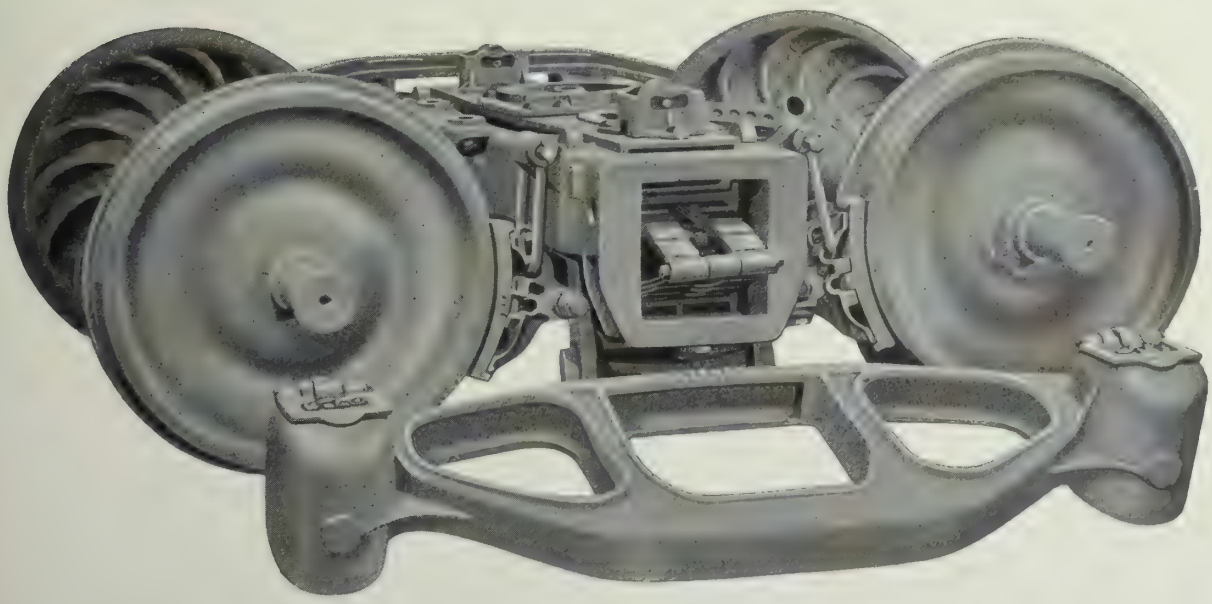
The BETTENDORF

Swing Motion Caboose Car Truck with Cast Steel Transoms



Another BETTENDORF Improvement

THERE are, already, approximately 6000 caboose cars equipped with Bettendorf Swing Motion Caboose Car Trucks. We are now offering these same caboose car trucks with cast steel transoms; a valuable feature which adds strength and reduces the number of parts without increasing the weight or cost. It will be a pleasure to supply detailed information concerning these, the finest of caboose trucks.



THE BETTENDORF COMPANY

OFFICES AND WORKS BETTENDORF, IOWA

YOU CAN'T BUY BETTER PROTECTION

AGAINST SHOCKS IN SWITCHING
AND IN TRANSIT

FOR CARS AND LADING

THAN

SESSIONS-STANDARD DRAFT GEAR

STANDARD COUPLER CO.
NEW YORK CHICAGO

ALIFORNIA

Transportation

The Monthly Magazine of the Transportation Industry

CALIFORNIA STATE LIBRARY

First View of America From the Zeppelin Window

Vol. III November 1928 No. 5

This illustration is from the current Hyatt national advertising helping railroads to sell more rides, through the assurance of more comfortable rides.

Hyattways Are Comfort Ways

With friction-free Hyatts in self-aligning journal boxes, railroad car axles float gently back and forth through the bearings . . . smoothing out irregularities of the tracks.

Accordingly, Hyatt Roller Bearings and Journal Boxes are contributing toward more comfortable riding . . . the smooth, restful riding comfort which identifies the Hyattway.

The Hyattway is the Saving Way, too! Hyatts meet every A. R. A. standard . . . making their installations more economical and further desirable. And in service, records show, Hyatts are an important factor in reducing operating and maintenance costs.

Because Hyatts satisfy all fundamental requirements they are foremost in anti-friction journal box application.

HYATT ROLLER BEARING COMPANY
Newark Chicago Detroit Pittsburgh Oakland

HYATT
ROLLER BEARINGS
PRODUCT OF GENERAL MOTORS

Schaefer Spells *Safety*

In Foundation Brake Details

All Schaefer Foundation Brake Details are drop forged from one piece of steel—*for safety.*

The steel used is a special, high carbon, wear-resisting analysis, heat treated for even greater strength—*and safety.*

—brake levers are designed to give even strength throughout the entire body of the lever—*for safety.*

—brake hangers are self-locking at top and bottom and have the greatest possible strength in corner structure—*for safety.*

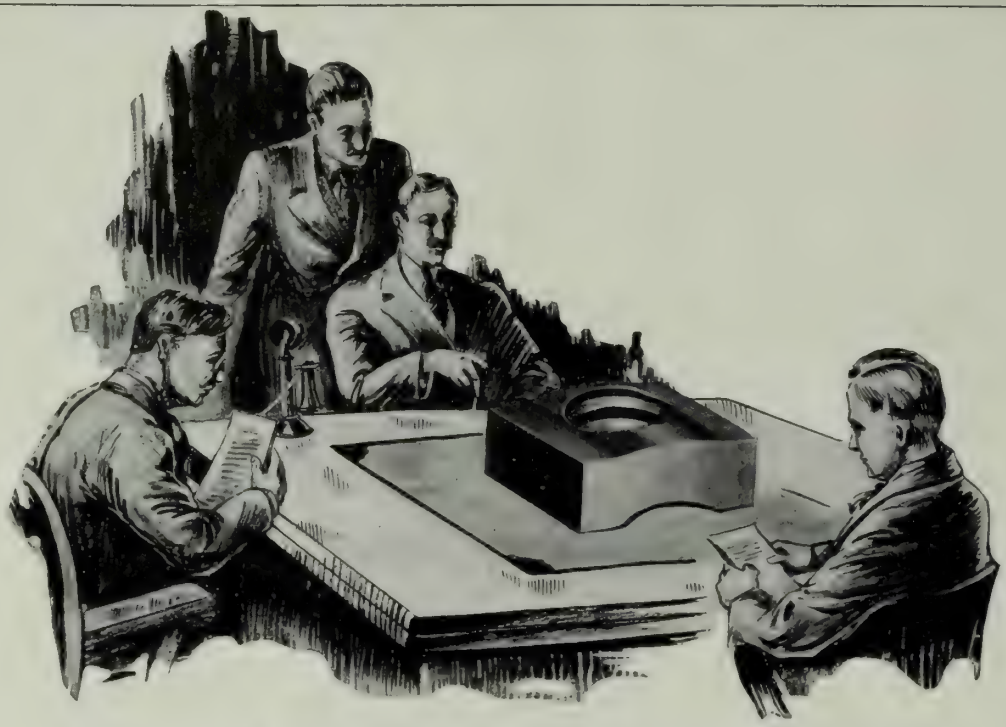
—truck lever connections have larger sections at upper and lower portions, giving ample material where most needed—*and greater safety.*

There isn't a safer way to insure safety than by specifying Schaefer Foundation Brake Details. Write for complete data on any or all Schaefer details.

Schaefer Equipment Company

General Offices

Oliver Building **Pittsburgh, Pa.**



Just "Being Right" Isn't Service

BOLTED parts had to be held together as only Grip Nuts could hold them. But from the car shops came complaints; bolts were turning in wood—in side sheathing, in floors—when Grip Holding Nuts were applied.

All over the country Grip Nut engineers began a vigorous investigation. Some of the bolts were oversize, some had lead errors; in some, bolt holes had been drilled oversize, or reamed out; in a few cases the fir had stood so long before being milled that it afforded no bolt-holding power. *In no case were the nuts found to be at fault.* The Grip Holding Nuts were *right.*

That Grip Nuts were *right* was not enough, however. The fact remained that the bolts were turning; the condition was there regardless of what caused it. Grip Holding Nuts had to be modified to meet the condition and still retain their reliable lock.

And that is just what was done.

The present Grip Holding Nut No. 2 is the same precision product; it has the same reliable lock; it locks with the same automatic positiveness regardless of the human equation in application—*and it no longer turns the bolt.*

GRIP NUT COMPANY

5917 South Western Avenue, Chicago, Illinois

Transportation

(Reg. U. S. Patent Office)

The Monthly Magazine of the Transportation Industry

NOVEMBER, 1928

VOLUME THREE NUMBER FIVE

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TRAINING FOR RAILWAY WORK IN AUSTRALIA, *W. A. Webb*
Chief Commissioner, Government Railways

QUEER HAPPENINGS IN OCTOBER

LITTLE STORIES ABOUT BIG MEN

AMONG THE MEN WHO DO THE WORK

PUBLISHED BY

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Support Modern Road Engines With Modern Switchers

AT the final inspection of a 5,000-ton train hooked to a Super-Power locomotive, a defective car was discovered.

An antiquated road engine used as a switcher took three cuts before the "bad order" car was removed. Meanwhile, the train had frozen up and over an hour had been lost.

Modern road engines, together with all the improvements that speed up operation are made ineffective unless supported by modern switch engines.

On one road, modern switch engines have cut switching costs over 40%.

Another road using modern switchers is saving enough from reduced yard costs to pay for the engines in five years.

An extensive replacement program is your best means for bringing down terminal costs and at the same time increase the car handling capacity of your yards.

LIMA LOCOMOTIVE WORKS
Incorporated

The Voyage of the Zeppelin

Germany to America and Return

By Charles Dillon

International Newsreel.

When the Graf Zeppelin Flew over Brooklyn Bridge Delighting New York's Millions and Leaving Stiff Necks As a Memory.

WHAT IS believed to be the most important advance in aerial transportation across the Atlantic ocean yet recorded took place October 15 when the giant dirigible, Graf Zeppelin, came safely to earth at Lakehurst, N. J. carrying 20 passengers and a crew of 40 from Germany. From the time it left Friedrichshafen to the moment of landing at the naval air station in the United States, the dirigible traveled 6,000 miles over land and sea—most of it sea—in precisely 111 hours and 49 minutes. The passenger list included one woman, Lady Drummond Hay. The distance was the longest ever traveled in the air without landing, and the time was within six hours of the world duration record of 118 hours, established by the French with the Dixmude, the former German Zeppelin L-72, delivered to France by Germany after the World War. When it landed at Lakehurst the Graf Zeppelin still had enough fuel for 64 hours flying at full speed, which is about 70 miles an hour.

The Graf Zeppelin left Lakehurst on its return voyage at 1:54 a.m., October 29, with 24 passengers and a crew of 40, and one stowaway about whom nothing was known until the ship was far at sea. As on the westward voyage, the ship carried one woman, Mrs. Claire Adams of Tannersville, Pa., taking the place of Lady Drummond Hay.

The return trip was accomplished in 68 hours and 52 minutes at an average speed of 60 miles an hour over a route of about 4,000 miles. To the astonishment and disappointment of many, Doctor Eckener declared that Zeppelin travel across the At-

International Newsreel.

A Corner of the Kitchen of the Big Graf Zeppelin. Electrical Equipment Is Used.

lantic is still far from what it must be in the future to insure speed and safety. Never in his life, he said, had he had such bad luck with Zeppelins. Storms had been encountered, he said, necessitating detours that were costly in time.

"I realize," said Doctor Eckener, "that for regular transatlantic traffic we must build bigger, stronger and speedier airships that can weather all storms without danger of breakage. On the return trip I wanted to show how fast the Graf really is, and would have done so if it had not been necessary to make long detours and if we had not run into a cyclone with the wind blowing 40 meters per second off Newfoundland.

"Just before we reached the European coast we struck another storm, which was certainly the toughest luck for one trying to make a record. But this ship stood the most severe test in splendid shape. And, for that reason, the voyage is most interesting to me personally."

The Graf Zeppelin's flight to America took more time and covered more mileage than had been expected because of storms and continual head winds. The one untoward incident of the voyage was recorded when wind tore off part of the fabric on one of the port stabilizing fins, and made it necessary to reduce the speed to 54 miles an hour until repairs were made.

Dr. Hugo Eckener, builder and commander of the airship, said the one unfortunate incident happened when the Graf Zeppelin was about half way across the Atlantic. Head winds held the ship prisoner for 24 hours near Bermuda Sunday, October 14. It was characteristic of the German commander to make little of what might easily have been another sea tragedy. The fact that four men, one of them his son, Knute, 24 years old, had climbed out on the damaged fin, and there, about a thousand feet above the Atlantic, had repaired the injury, working six hours in doing it, seemed scarcely worth talking about as the commander viewed it, although it was quite evident he realized the great risk the men had accepted. Such an accident, he said, never had occurred before, and might never occur again.

Before proceeding to Lakehurst, Commander Eckener took his ship over Washington out of respect to the President and the national capital, and over New York where millions viewed its passage above the tall buildings. It was an interesting coincidence that the Graf Zeppelin landed in America on the same day upon which, four years ago, the ZR-3, now called the Los Angeles, came to this country. But the Los Angeles made a shorter trip, taking a 4010-mile course and finishing in 81 hours and 17 minutes. Doctor Eckener was the commander on that ship also. The fastest steamship record, interesting now in comparison with the Zeppelin's voyage, is held by the Mauretania which crossed the Atlantic in 122 hours and 43 minutes, but covered only about half the mileage shown on the Zeppelin's log.

Up to this point the voyage of the Graf Zeppelin has been described merely for the record in future years. Experts in transportation are not much concerned over the thrills of the passengers. To carry those passengers safely and comfortably across the sea was the big objective. How was it done and in what kind of a ship? Widespread ignorance on this point prevails despite the millions

—International Newsreel.

The Salon or Drawing Room, What We Call the Sitting Room at Home, Aboard the Big Zeppelin.

of words printed about the achievement in every part of the world. An evidence of this was encountered in a motion picture theater the day after the Graf Zeppelin landed. When a picture of the great dirigible was shown on the screen an intelligent looking man said it seemed to be at least 200 feet long. He was frankly incredulous when informed that the German airship was nearly four times that length. For this man and doubtless for millions like him the news event was the ship's arrival.

But the Graf Zeppelin means much more to humanity than a news item. It may, conceivably, be the preferred mode of travel across the sea and over great land distances in some future time not beyond the present generation. What, then, are the mechanical features of this great air liner, and what comforts are provided for the passengers?

The Graf Zeppelin is 770.8 feet long, or about 50 feet more than the ordinary city block which is 360 feet. Its height is 100 feet. Its gas capacity is 3,707,970 cubic feet. It has five 12-cylinder, 550 horsepower Maybach-Zeppelin motors, weighing 2,450 pounds each. Separate gondolas house each motor. The fuel used is Blau gas, commonly known as "blue gas," a highly compressed gaseous fuel derived from oil. Its specific gravity is almost the same as air, so that fuel consumption during the voyage does not disturb the weight balance of the ship.

The maximum speed is 80.7 miles an hour; traveling speed, 68.3 miles an hour. The dirigible is estimated to have a traveling range of more than 6000 miles and it cost about $1,000,000. It has accommodations for a crew of 40 and 20 to 25 passengers on long flights. On short flights, 40 to 50 passengers can be carried and probably a larger number. Ownership, according to the official account, rests in the German people. The ship was built by the Zeppelin company on funds raised partly by popular subscription and partly by government subsidy.

The illustrations show some of the creature comforts, a large salon, saloon or sitting-room, really a lounge; excellent staterooms or bedchambers, a kitchen electrically equipped, good light, ventilation and warmth, but no smoking —positively no smoking, and this, for some of the passengers, was one mean thing about the trip in the dirigible. On account of gas and the reasonable assumption that some of it might be floating around, one cigaret, a pipe or a cigar might cause an explosion with tragic results.

Of course there were a few grouches among the passengers—one finds them everywhere except in print shops and editorial offices, and these objected strenuously to the Zeppelin's rolling about somewhat in the storm; they growled because the water supply ran low,

—International Newsreel.

One of the Comfortable Staterooms Aboard the Graf Zeppelin. Notice the Net on the Upper?

due to the unexpectedly long journey, and they had been compelled to drink champagne, a terrible trial, goodness knows. But they all cheered up when they reached the hospitable shores of New Jersey where the well known water wagon of the Eighteenth Amendment was in waiting, and everyone could smoke his head off without interference.

Passengers of normal mental attitude appeared to have enjoyed the voyage immensely. There were card games, many hours for reading, there were meals as bountiful as one might reasonably expect with one kitchen and only two persons to do the cooking and serving, and even if everyone did slide to one end of the big saloon when the ship heaved in the storm —the man at the controls having turned the wrong wheel quite inadvertently—what of it? No one was injured, none of the invaluable typewriters or cameras were broken, and enough dishes remained whole to serve the next meal.

Then came the first view of America, seen through the Zeppelin's windows as illustrated on this month's cover—land and safety and a wildly enthusiastic welcome after a long aerial voyage, certain always to remain a bright spot in the history of aviation. Then came the only unpleasant incidents —on shore—chargeable to excitement among subordinates, police officers and customs inspectors, conduct quite frequently attributed to American bad manners, but so many conflicting reports were printed about this that it belongs here only as a necessary part of the imperishable record.

It is necessary also for future generations to tell who made the memorable journey. The passengers were Commander Charles E. Rosendahl, U. S. N.; Robert Reiner of Weehawken, N. J.; Frederick Gilfillan, an American living in Lucerne, Switzerland; Lady Grace Drummond Hay; Col. Emilio Herrera, who is planning a passenger airship service from Spain to South America; Albert Grzesinski, Prussian Minister of the Interior, representing the German Federal Council; Ernst Brandenburg of the Federal Ministry of Transportation; Dr. Denkendorf, meteorologist of the Aeronautical Institute; Dr. Krueger of the Aeronautical Testing Institution; Count Brandenstein-Zeppelin, son-in-law of the late Count von Zeppelin; Karl von Tyszka, representing insurance interests; Engineer Bock of the Telefunken Company; Engineer Schirlitz of the Zeiss Optical Company; Dr. Ludwig Dettmann, a well-known painter; Karl von Wiegand, American newspaper correspondent; Rolf Brandt of the Scherl Publishing Company; Walter Kieffel of the Ullstein Publishing Company; Theo Mateiko, a cartoonist, and two motion-picture cameramen.

Lieutenant-Commander Charles E. Rosendahl, U. S. N., who rode as a guest-observer, said passengers soon fell into shipboard routine, diaries were fattening and the click of news-reel cameras became commonplace. The thrill had worn off, but in the control room the officers knew from their weather charts what lay ahead, he added.

The day when the one accident occurred, the tearing of the port fin, the ship, he said, suddenly bucked right into a squall. It happened just before breakfast. "The Zeppelin's nose got it first," he said. "The ship bounded up as if some giant's hand had shot up a blow from the sea. As the bow

—Herbert Photo

The Graf Zeppelin Flying Over Lake Constance, Germany, on a Trial Trip Preparatory to Starting for America on Her Epochal Flight.

went up the stern went down. There was a crash and clatter in the dining room. Dishes went flying. Lady Drummond Hay suddenly found her eggs in her lap.

"And then the only woman passenger laughed. The tension eased and in a moment all hands were teamed up to tidy the damage. It was good fun."

The officers' decision was instantaneous, he said, when a lookout reported three-quarters of the underfabric stripped from the fin. The ship was swung to slow speed and officers and crew patched and lashed the fabric of the fin so that no more of it could be carried away. He said that never after that did the ship dare to risk full cruising speed.

Commander Rosendahl says the Graf Zeppelin is a good ship, but he does not believe it is the ultimate size that eventually will be used in regular transatlantic service.

"They must be bigger and bigger," he said, "until the most efficient size is achieved."

He expressed the opinion that the ripping of the fabric from the port fin did not imperil the dirigible, but only necessitated reduced speed from that time on.

Over the Atlantic in 12 Hours?

By Ralph E. Williams

If his new airplane propeller does what he believes it will, and if the supplementary motor he is making delivers the goods as it should, Lucian M. Foster of Troy, N. Y., says it will be possible soon to cross the Atlantic in 12 hours. The propeller is built in two semi-circular sections instead of the usual blades. These represent a wheel, bisected and set at a pitch. The "rim" is hollowed so that, when rotated rapidly, the wheel sends a strong draft of air straight back instead of spreading it sideways as do propeller blades. By changing the pitch of the two sectors, a greater rush of air is created without increasing the speed of the propeller. A model test shows a nine-pound thrust per horsepower which is 25 per cent greater efficiency than is obtained by any other type of propeller. While blade propellers flutter at high speed Mr. Foster's invention is well braced so as to be permanently rigid. Where the blade propellers cover only two square feet of area, the vortex caused by his propeller is 15 times greater. Mechanical experts from the Ford factory have examined Foster's invention and a working size sample is being made by an Albany, N. Y., concern to be used in experimental work on the Ford planes.

The gasoline motor which he also is perfecting will, he says, change aviation. A distinct feature is the flexible connecting rod which will, he says, operate on half the fuel required with a rigid rod. There is also in this motor an absolute absence of noise or flame in the exhaust. The carbon monoxide gas also is dissipated so that none of the dangerous vapor is evident when the machine is in operation. By pulling down the speed to 20 per cent of normal, Mr. Foster says his machine can carry a marvelous overload.

The new engine, he says should be able to operate at an altitude of 30,000 feet with no loss of power and, at an altitude of from 20,000 to 25,000 feet, could do 300 miles an hour.

Santa Maria's Airport Opened

More than 20,000 people and 60 airplanes were present at the opening of the Santa Maria airport at Santa Maria, Cal., October 21. The celebration was larger than had been expected and was attended by pilots whose names are known to everyone interested in aeronautics, and by people from all over California. The airport, a project of Captain G. Allan Hancock, who financed the Southern Cross flight to Australia, is said by visiting pilots to be one of the best in the country.

Four pilots from the Navy flying base at San Diego, including Lieutenant A. P. Storrs of the famous Sea Hawks, and five flyers from the army bases at March and Crissy fields, gave exhibitions of stunt and formation flying. There was parachute jumping, and $2000 in prizes was awarded in races and dead-stick landing contests. In a dead-stick landing the pilot is required to come to a stop at a line without the assistance of his motor. Perhaps the greatest attractions were Al Wilson, with his pusher plane, Art Goebel and Emory Bronte. Goebel declared the field "marvelous and equal to any at which I have landed between New York and Los Angeles." Visitors from other parts of California were impressed that the town of 8000 could stage so efficiently a celebration which would have been a credit to a much larger city.

The Santa Maria Air Lines, Inc., will be equipped with the latest type mail and passenger planes, and will operate regular service to Los Angeles and San Francisco, the schedule of which has not yet been arranged.

The following prizes were awarded:

Class B. 800 inches: H. C. Lippiatt, first, flying Travelair 5-C; George Maves, second, Travelair 5-C; Paul Richter, third, Eaglerock; Hallock Rouse, fourth, Stearman.

OX-5: Lea Nomis, first, Travelair OX-5; Fritz Secor, second, Eaglerock; G. R. Vargland, third, Waco; Dick Rinaldi, fourth, Waco.

Small monoplanes: August Clancy, first, Monocoupe; Joe Clancy, second, Monocoupe; W. G. Mead, third, Golden Eagle.

Dead Stick: Fritz Secor, Eaglerock, first; Leo Nobis, Travelair, second.

Cabin Planes for Speed and Efficiency: Paul Richter, first, Fokker-Universal; J. G. Burnley, second, Monocoupe. All pilots are from Los Angeles airports except Burnley and the two Clancys who are from Pomona and Rouse from Santa Maria.

Another Station

A man had been riding in a stuffy smoking car, and when the train stopped at the station, he went out on the platform and took deep breaths of fresh air. In his enjoyment he said to the brakeman: "Isn't this invigorating?"

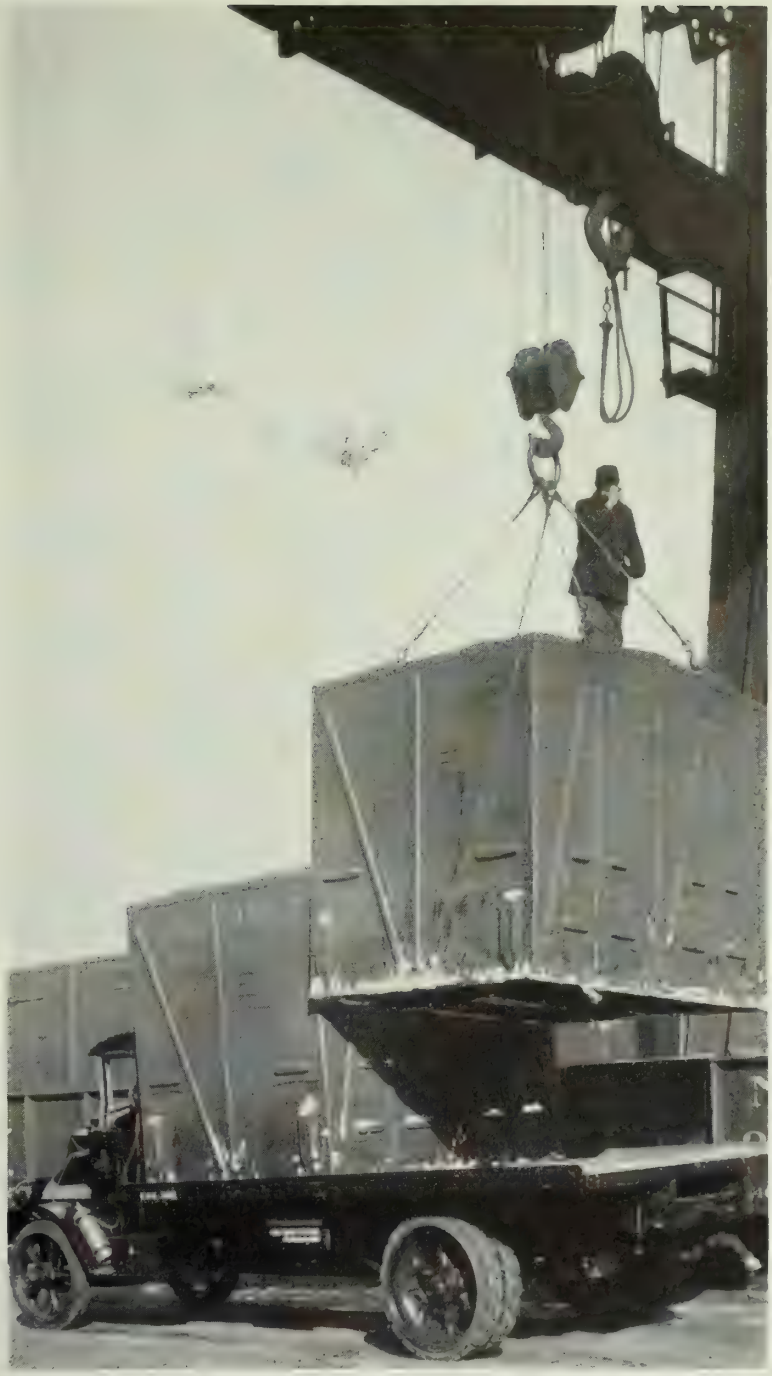
"No, sir," was the reply, "this is Coshocton."

It Was a Great Day for Santa Maria: Hundreds of Planes, Famous Pilots, the Army and Navy, Including the Sea Hawks to Honor the New Airport for Spotless Town.

How Short Haul Cost is Reduced

Four Ply Transportation

By U. V. Wilcox
and
A. J. Cullen



How the New York Central Handles L. C. L. Freight. Electrically Operated Cranes Transfer the Metal Containers From Standard Gondolas to Trucks.

TO CUT down the cost of short-haul business and less than carload lots as well, containers which can be shifted from a truck body to a flat car or a boat seem to be serving a fine purpose. Handling charges, time, and terminal overhead have been much reduced. In Cincinnati and Pittsburgh the service is called an experiment in four-ply transportation: truck, street car, railway and boat. By this system of transferring small freight between local stations it has now been shown that the time required for its movement is reduced 52 hours, and the cost of handling is decreased 35 cents a ton.

Through this obviously simple plan of transferable containers handled by an inter-operating company 15 per cent of the existing platform area in the freight stations is released for other use, and nearly 200 cars are taken from transfer service and turned over to other needs. The handling of these 200 cars through congested terminals, such as are found in all large cities, is estimated as costing the time to make 300,000 switchings a year.

A European railroad man visiting in this country finds it difficult sometimes to understand our attitude toward the short haul until he becomes familiar with the difference in history of the two hemispheres. In Europe, or, let us say, in England, a standard railway was the outgrowth of the country's needs. There were,

Containers Lined Up Ready for Loading or Shifting to the Railroad Car.

comparatively speaking, no long hauls. The railways made profits most of the time with their freight business—before the trucks took most of it away from them.

Over here, however, the country was developed by the railways. In a large way of thinking our roads were built for long haul business. There never was much money in short trips, and when truck competition began to grow more and more keen what money there had been floating around began to disappear. To get any of it made the cost too high. The removable containers, first tried two or three years ago by the New York Central and some other eastern lines, seem to be solving the problem of handling this kind of traffic. The importance of such experimentation is shown in figures indicating that in New England states and adjacent territories 64 per cent of the tariff receipts are for less than carload freight taken over a short distance.

The economy of container service seems to be demonstrated in actual practice in the environs of Cincinnati where the plan is in operation. At Cincinnati the motor truck, hitherto considered a competitor of the railroads, has found its chance to cooperate with them. The cost of the trucks to the cooperating lines was $150,000. The use of trucks on such a large scale and the utilization of containers was adopted rather than a large capital expenditure for huge terminals. Twelve millions was the alternative facing the railroads.

Briefly this plan involves the loading of package freight at the stations on five-ton trucks that have or can carry demountable bodies. There is formed a terminal company which controls the system. The company operates between all the railroads in a way similar to a union station passenger and baggage service with its affiliated transfer-express companies.

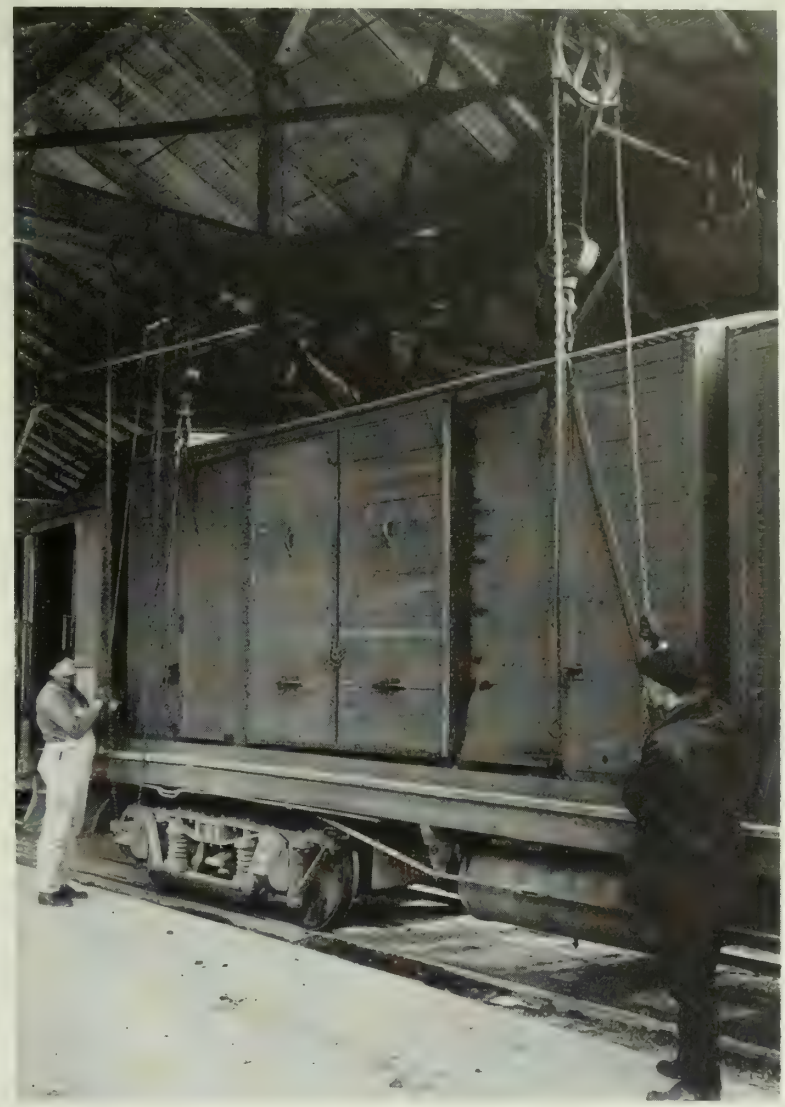
These demountable bodies, so freely moved about, have been standardized. They are of weatherproof steel and wood construction with a capacity of 10,000 pounds. They have double, interchangeable doors in side and end, thus making it possible to load them from any position. The doors are fitted with bars and can be sealed as on the standard freight car plan. More than 200 are in use in and about Cincinnati.

To put this simple system into operation it was not necessary to do much construction work on stations. In a few instances driveways were made and clearance

provided, while at others it was made possible for the trucks to reach the platforms at ground levels.

The plan of operation has been to have a large number of these container-bodies so that as freight is received for transfer to other stations, either from drays at the outlying districts or from cars at the central inbound stations, it is trucked direct to the proper bodies and stowed therein by the railroad's employes. When the container is filled the doors are sealed as on a freight car. The truck dispatcher is then notified that it is awaiting movement and the destination is named so that it can be promptly picked up.

The container being placed on a truck by a block and tackle system the driver notes the total weight before signing a receipt and then takes the load to its marked destination. Upon reaching there he delivers the bills to the foreman who receipts for them. The bodies are then either opened or placed on flat cars, electric cars, steamers or on other trucks for movement to the ultimate destination. The routing of the trucks from one station to another is centralized in the hands of a dispatcher employed jointly by all interested transportation companies. The dispatcher is in direct telephone contact with all the stations, shippers and railroads.



Placing the Steel Container on the Flat Car Ready for Movement to Destination.

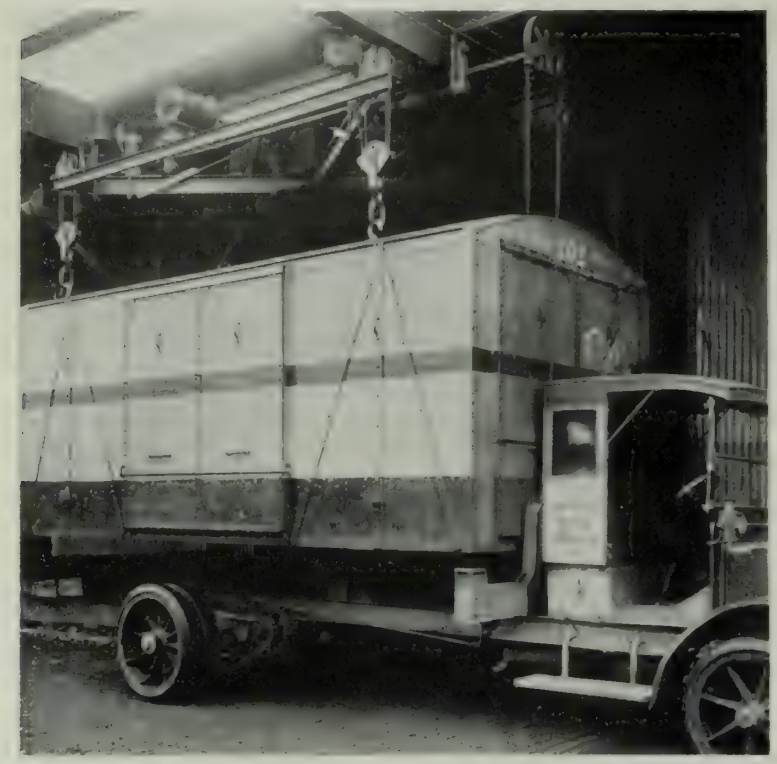
In the working out of the system in Cincinnati, the trucks are in continuous service making 26 trips during the ten hours of work. This is an average. The bodies are handled rapidly. At the present time an average of 660 tons is being moved daily. The records are sufficiently clear as to the results. The average time formerly required through switching and transferring has been reduced between one main station and that of its connecting line. Previously this took 62 hours. Between a main station and a sub-station on the same road 55 hours, while that required for the movement of the freight across the street by dray or motor 72 hours. The average time required was 62 hours.

With the system of transfer by containers 98 per cent of the freight received is handled and delivered within the limits of a ten hour day which means a saving of 52 hours. Over 75 per cent of the freight handled is received at the outgoing station in time to forward it the day of its receipt to the inbound station. Previously the cost was an average of $1.71 to the ton mile while now it is $1.37, which is a reduction of about 20 per cent.

Another advantage to shippers and railroads is the entire elimination of loss and damage claims, including loss by theft. Claims have been nil while previously they were numerous. Perhaps some of this saving has been psychological.

The saving of the large standard freight cars for other purposes has amounted to 66,862 car days releasing more than 200 cars for other purposes at the same time making available the track room which they formerly occupied at the stations, in turn increasing the capacity of the stations.

In Pittsburgh the use of transferable containers is being carried still farther. The street railways have a plan to move them over certain districts where there is trackage at a reduction over the



Placing the Container on the Frame of the Motor Truck At the Station, Ready to Deliver to Any Part of the City Without Waiting for Unloading or Switching.

handling by trucks, particularly to the suburbs. By the same plan slightly expanded, store-door delivery and pick-up is facilitated by the simple expedient of having containers that can be used in the whole system of four-ply transportation.

Railroads everywhere are realizing more and more that highway carriers, in most cases, are coordinating allies and not competitors. The proof of this is seen in the fact that at present 67 American railroads have adopted buses, and 59 have added truck service to their freight facilities. In some of these cases, buses have been installed on routes which could not economically be covered by rail; in others the buses are operated on parallel service for travelers who like to ride on rubber. In the freight department the motor truck seems to be the solution in many cases for the l. c. l. problem.

The New York Central service has been mentioned briefly. In this case metal containers are used in conjunction with Mack trucks. Some of the advantages have been the moving of small shipments between terminals or to warehouses without rehandling; the elimination of thievery and breakage, and the reduction of switching movements, all of which have saved time and money. Although these containers weigh only 3,000 pounds they have a loading capacity of 7,000 pounds. Six of them can be loaded on a standard gondola car and two make a load for a truck. Loading and unloading is done by electrically operated cranes. The use of this system has already reduced the cost per ton mile from three to two cents.

The experience of another railroad, the Central of New Jersey, is also an example of coordinated truck and rail operations which have proved satisfactory. In an effort to solve the l. c. l. problem on one of their routes this company installed a Mack 5-ton truck last May to operate between Red Bank, N. J., and Point Pleasant, a distance of 23 miles. This particular installation is unique in that it is believed to be the first motor truck in actual line service, owned and operated by a railroad on coordinated schedule with freight trains, it being under the direct control of the division freight department. Covering this route by rail had cost $152.08 a day or $46,840.64 a year, while the daily gross cost of the Mack has been estimated at $32.28 or $10,142.24 a year. By the simple process of subtraction, the truck, according to estimates, will show an annual saving of $36,698.40 with a general speeding up of the l. c. l. freight handling all along the route.

R. J. Littlefield of the Boston & Maine stated some time ago that it costs from $1.17 to $2.02 a mile to operate steam trains, while buses cost from 26 cents to 30 cents a mile. "During a year's period the bus service on one branch cost 29.9 cents per mile, or 86.2 cents a mile below the cost of the rail service," said he. "Depreciation of the buses is included in the unit figures on a basis of 200,000-mile life. The revenue from bus operation for the year averages 31.2 cents a mile. In other words, the Boston & Maine Transportation Co. (bus subsidiary) supplied the more frequent service at a yearly cost of $12,134.19 against a cost of $24,305 for the less frequent rail service. As the total revenue from the highway operation was approximately the same as that received by the steam service, the difference between the cost in the two types of service represents the approximate net saving to the railroad."

Of course not all railroad operations lend themselves as readily as does the Boston & Maine to the substitution of buses for rail operations, but when possible millions of dollars of potential savings are involved, railroad management may be expected to be alert to its opportunities.

The Railways Lead in Safety First

Lindbergh Talks to the Congress

By
J. R. Fisher

When the Mexican Capital Showered Confetti on Lindbergh.

THERE may be times when it is an up-hill job to impress the men with the overwhelming importance of safety first to the company, to themselves, and to their families. Perhaps it may help a little to tell the thoughtless or indifferent ones how the great broadcasting company in New York felt about the matter, one day last month, when the National Safety Congress was in session, Oct. 1 to 5.

The demonstration came the afternoon that Colonel Charles A. Lindbergh was to speak to the congress. At the very same hour one of the world series baseball games was in the throes of combat at the Polo Grounds. Only one wave-length was available. Should the exciting details of the ball game be broadcast or should the air be cleared for Lindbergh's talk? No one in charge of either event had thought about the matter.

But the broadcasting company considered it gravely. The decision as to the comparative importance of the two big events came suddenly. When Lindbergh rose to speak the Polo Grounds were cut out. The safety talk went over the nation to the perspiring millions. When the colonel finished his lugubrations the baseball went on the air again, and peace was restored.

It was a fine opportunity to instill into the people's minds the fact that the slaughter of the careless ought to be stopped. More than 95,000 persons died in accidents of one kind or another last year, something pretty serious to think about. The congress did what it could; it adopted resolutions deploring the solemn fact. These resolutions went out over the country, as many millions of warning words had gone out before them, in past years, plans were discussed for preventing loss of life, more resolutions were adopted, the different industries had representatives there to talk about the tragic situation, and everyone regretted so little could be done—men and women are so heedless. Perhaps the most distressing thing about the whole record is the fact that most of these 95,000 deaths might have been avoided—enough men and women to people a fairly large city —think of it!

Don't harbor the idea that accidents happen mostly on railroads. In no industry, it was shown, has safety made greater strides than in steam railroading. Just what the roads are doing to increase the safety of employes and passengers was told by outstanding leaders at the sessions held in the Waldorf-Astoria October 2, 3 and 4. The presiding officers of these sessions were: E. R. Cott, supervisor of safety for the Hocking valley, and J. E. Long, superintendent of safety, of the Delaware & Hudson.

President P. E. Crowley and J. H. Spooner of the New York Central Lines made the key speeches. "Organized safety work was first undertaken on the railroads in 1913," said Mr. Crowley. "In that year 3,353 employes were killed and 170,239 injured. In 1927, 1,427 employes were killed and 83,883 injured. That is, by systematic effort, the number of employes killed was reduced 57 per cent, and the number injured was reduced 51 per cent, although the business of the railroads has increased greatly during that time."

One of the most informative papers presented in the steam railroad section was the one by S. H. Osborne, engineer, maintenance of way, Union Pacific, Omaha, on "Track Motor Cars, Their Use,

Care and Operation." Mr. Osborne outlined the possibilities of accidents on such motor cars. Brakes, safety rails, standard weight, correct lubrication, proper inspection, standard time pieces, thorough examination of operators, speed restrictions, free running engines, suitable setoffs, and caution, were some of the suggestions offered for the safe operation of these cars on railroad tracks.

On behalf of the committee on public relations J. L. Walsh reported that during 1927, 25 railroad companies sent representatives of their safety departments to address 2,028,974 school children and 267,000 other persons on the subject of safety as applied to care in crossing railroad tracks, etc. Mr. Walsh declared that if all the Class 1 railroads had been canvassed, this number could be multiplied by two or three.

"Safety in the Maintenance of Way and Structures Departments" was the topic presented by W. L. Roller, chairman, engineering committee, the Hocking Valley Railroad, Columbus, Ohio.

"With the rapid growth of population," Mr. Roller said "and the constantly increasing demand for transport of freight and passenger, has come a phenomenal and almost incredible increase in size and weight of locomotives and cars, while at the same time greater speed in the movement of trains was required. This constant change has caused the development of a technique in an engineering way which, in its growth and its effectiveness, is as unique as the growth of the railroads themselves. It has involved study into the bearing power of soils, the ultimate strength of materials such as wood, stone and steel. It has led to the development and further refinement of concrete. We have come a long way in the matter of material safety in the operation of railroads. Sometimes, however, there is a tendency to cheapen the quality of materials which enter into the construction of railways. Cheap or shoddy tools have been responsible for a great proportion of injuries to the maintenance of way workers. The wholesome cooperation of the purchasing and using department will go far to reduce the number of personal injuries."

J. H. Spooner, terminal trainmaster, New York Central Lines and Ohio Central Lines, Toledo, discussed "Safety in the Yard":

"To give some idea of the scope of our operation: During 1926 we handled a total of 1,497,554 cars; in 1927, 1,514,380 cars; and in 1928, to October 1, we have handled 1,032,000 cars. During the lake shipping season, about 25 per cent of the total cars handled consist of lake coal, each of which is handled from two to four times. The daily car handling runs from 4,000 to 6,000 cars. Including crews engaged in transfer service we work from 50 to 60 eight-hour trick engines daily. The total capacity of the several yards is about 7,000 cars. An average of 22 trains are made up and moved out on the road daily, and about the same number received from the road and classified for our connections. In the case of lake coal, the cars are grouped according to lake consignee—of which we have about 75 at present—and held for arrival of a boat to handle a particular grade; this in addition to approximately 14 transfer runs handling interchange business from and to the yards of our connections. We also operate a coal machine dumping approximately 600 cars daily into boats for movement to the upper lake ports. Since February, this year, our transportation department reports no injuries."

Other speakers at the various steam railroad sessions included: L. G. Bentley, Chesapeake & Ohio; G. C. Varnum, manager, St. Louis Safety Council; T. P. Brennon, Long Island Railroad; Arthur Geiringer, Equitable Life Assurance Co.; J. L. Walsh, Missouri-Kansas-Texas; C. T. Bailey, Oregon Short Line; J. A. Carney, Chicago, Burlington & Quincy; H. M. Mayo, Southern Pacific Lines; A. B. Hoff, Erie Railroad, and Z. B. Clayyoal, St. Louis-San Francisco Ry.

At the electric railways sessions, held October 2, 3 and 4, speakers included: Lucius Storrs, managing director of the American Electric Railway Association; D. A. Scanlon, general superintendent, Northern Ohio Power & Light Co., John J. Reynolds, Boston Elevated Ry.; Harry Cordell, manager, American Electric Railways Association; Arthur T. Warner, general manager of traffic of the Public Service Corporation; Dennis Fennell, Kansas City Public Service Co.

A. W. Koehler of the Milwaukee Electric Railway, was chairman of the meetings. He discussed the accomplishments of the past year which related to accident-prevention. Mr. Storrs pointed out that the electric street car is the safest of common carriers, only one passenger in every 155,000,000 carried last year being fatally injured. One of the features of the electric railway section was a play entitled, "Whose Fault?" presented by the Public Service Corporation of New Jersey, directed by A. J. Van Brunt, director of safety education.

In the automobile section, E. B. Lefferts, manager public safety department of the Automobile Club of Southern California, told of "A New Procedure in Traffic Law Enforcement", which he described as the San Diego Plan. Mr. Lefferts explained that the plan focuses attention on the accident phase of traffic problems rather than upon the technical aspect of traffic violations. This plan has succeeded. Motorists are put on their own responsibility to drive safely, instead of doing so because a traffic officer is waiting to arrest them for technical offenses.

R. W. Meade, president of the Peoples Motorbus Co., St. Louis,

discussed "Safe Bus Operation," based on the following factors: Standard rules for city street car operation were applied to motorbuses. A tried system of discipline was employed, the same methods as those used in the steam and electric railway fields. Training and promotion, maintaining a differential pay rate in favor of the bus driver, as an incentive to the man working on the rear end. Physical and mental examination of crews; incentives offered to longevity of service. Mechanical excellence of equipment. Mechanical inspection and repair. Means to prevent skidding. Safety organizations, and records and statistics.

In the aviation section, the big feature was a talk by Colonel Charles Lindbergh. Many of the speakers on aviation pointed out the possibilities of air transportation, its safety and its speed. For example, T. P. Wright, chief engineer, Curtis Aeroplane & Motor Co., Inc. said: "The most important single feature connected with airplane transportation which can convince the public of the possibilities of flying is the assurance of safety comparable with that which exists in other means of transportation." Mr. Wright classified forced landings, acts of God, structural failures as the chief causes of delaying the present development of air transportation.

In the marine section, H. J. W. Fay, vice president, Submarine Signal Corps, Boston, discussed "Echo Depth Sounding to Promote Safety on the Surface of the Seas." He pointed out the increase of speed and safety of navigation, and mentioned the development of echo depth finding as a noteworthy improvement over the lead and line sounding. This echo method requires no mechanical connection with the bottom, and it represents a radical and brilliant step in man's mastery of the sea.

At the general opening session of the Safety Congress, messages were read from President Coolidge, Governor Smith, and Mr. Hoover. Homer E. Niesz, president of the National Safety Council, declared that during the last 15 years every class of accidental fatality has decreased, with the exception of those caused by automobiles. He estimated that 3,000,000 industrial workers suffered lost time last year, and 25,500 workers lost their lives through accidents, and he urged that accident prevention work be carried on intensively in workshops of smaller industries.

President Crowley of the New York Central, Speaker at the Safety Congress.

Increase of Salaries Off-Sets Living Costs

Wages in the United States have increased 50 per cent over living expenses since 1913, the United States department of labor statistics reported. Wages in 1920, on an hour basis, were 134 per cent higher than in 1913, the report stated. This was the peak, and in 1921 and 1922 wages dropped until they were a little more than twice as high as in 1913.

The cost of living in 1920 was 109 per cent higher than in 1913, but because of the higher wages the worker still was 12.2 per cent better off in his living than in 1913. Cost of living dropped in 1921 and 1922 and rose comparatively little up to 1926. In 1926 cost of living was only 75 per cent higher than in 1913. Thus in 1926 for his hour of work the laborer could buy 30.7 per cent more than he could in pre-war days.

An English Opinion

Every railwayman can do something to improve understanding (between the railways and the public), no matter how small a cog he may feel himself to be in the railway machine. A proper pride in his own duties will by itself go a long way to help. Few of us can perform spectacular deeds, but we can all put our strength and intelligence into the work that lies to our hand. The railwayman who is really happy in his occupation is serving his country as well as his company. For once more let it be said the maintenance of our railways in full efficiency is a national question and not merely a matter of concern for railway shareholders. Just because railways touch modern life at so many angles, we railwaymen should study carefully the economic developments which are going on around us.—R. Bell, assistant general manager, London & North Eastern Ry.

Magnetism in Rails

Steel rails on a north and south track last longer than those laid east and west, because the magnetism generated by the train-friction is undisturbed in the former case, while, in the latter it is resisted—Delaware & Hudson Bulletin.

If the traveler does not meet one who is as good, or better, than himself, let him keep to his solitary journey; for there is no companionship with a fool.—Proverbs of Spain.

Barges on the Rivers, As Shown Here, Certainly Do Take Much Freight From the Railroads.

Cigars and Freight Rates

Briggs, the cartoonist, says someone always is taking the joy out of life, but this is only partly true. Depend upon it, every now and then some solemn-faced goof contributes hugely to the all 'round joy of daily existence. "I wish you would tell me, if it isn't a family secret," said a customer in a cigar store a few days ago, "just why you charge 17½ cents apiece for this kind of cigars. A few years ago they cost only 15 cents."

"It's the freight rate," said the proprietor, without changing color. "I'm paying two dollars a thousand more now for those cigars because of the higher freight rate. You'd scarcely believe——."

"No, I don't," said the customer. "This is a good out-door cigar, but it isn't worth 17½ cents."

So the customer availed himself of the great American privilege of going into a freight agent's office and boldly demanding to see the tariff on cigars.

"Certainly" said the smiling clerk, "what kind of cigars?"

"What difference does that make?" inquired the citizen, now thoroughly aroused. "As a tax-paying, voting citizen of this glorious commonwealth in the city and county of——."

"Well, there are different kinds of cigars," the clerk interrupted, as if imparting an important discovery, "and very naturally it costs more to ship one kind than another. Now the five-center—"

"Are you trying to insult me?" the customer demanded.

"Not at all. Now, take the three-for-a-half—and that's what you're interested in, of course—."

He seized a weighty volume as big as a New York city directory, riffled the pages and began to read eagerly one that seemed to interest him. Coming up for air, he went on with his lecture.

"There are 50 cigars in a box——"

"Some hold a hundred, I've seen them," the customer said.

"Fifty cigars and the box weigh approximately two pounds. Therefore, 100 cigars in a box would weigh twice that much or four pounds. See what I mean?"

The customer, although no shark at figures, admitted this sounded reasonable to him.

"It follows, therefore," the clerk went on, patiently, "that 1,000 cigars in boxes would or should weigh approximately 40 pounds, and we should—mind I say should—find 2,500 cigars in 100 pounds. Now the rate on cigars differs in different classifications and there are many, with innumerable conditions and provisions. However, ——"

"Comma?" suggested the citizen.

The clerk smiled. "Yes, comma. On one kind of cigars the rate is $9.63 a hundred pounds. On another it is only $4.82. In this——"

"Those must be the five-centers," said the citizen.

"Not necessarily. But if we turn to the classification and then consider the conditions applying to the average cigar I should feel safe in saying that the dealer is not justified in increasing the price as you say he is doing. Even a child should understand, and you of course are a full-grown man, that we can carry 2,500 cigars from Chicago to this city for approximately $5.14 a hundred pounds. Providing, of course, that they come under the conditions as shown on Page 1567 paragraph 394. You understand, naturally——"

"O, absolutely," said the citizen, "and I want to thank you for this clear-cut explanation. It's the first time I've understood tariffs and things. Certainly makes it reasonable, doesn't it?"

"It sure does," said the clerk.

They Who Feel Poor

It begins to be seen that the poor are only they who feel poor, and poverty consists in feeling poor. The rich, as we reckon them, and among them the very rich—in a true scale would be found very indigent and ragged. The great make us feel, first of all, the indifference of circumstances. They call into captivity the higher perceptions and subdue the low habits of comfort and luxury; but the higher perceptions find their objects everywhere; only the low habits need palaces and banquets.

The Rubber Tire Trolley Has Arrived

By James Pauley

A Good View of the New Rubber Tired Trolley Car Built by the St. Louis Car Co.

AND NOW, ladies and gentlemen, having expressed your opinion at the well known ballot box, we draw your attention for a few moments, if you have not already seen it, to the interesting vehicle displayed in the space just northeast of this column—the long-awaited rubber-tired trolley car.

Here we see a street car operating on rails but riding on rubber. It weighs less than 18,000 pounds, has seats for 39 passengers, and may they all get them. Another important fact not to be overlooked in these get-there days: the new Birney car accelerates from a standing start to 20 miles an hour in five seconds, which is quick enough, and drives through a propeller shaft, a differential and a universal joint like an automobile.

The new Birney was built in the shops of the St. Louis Car Co., and reached Cleveland just in time to attend the big convention of the American Electric Railway Association. Because of its comparatively low weight, clever balance, and roller bearings on the axles, a man of ordinary strength can push the car on a level track.

Two 50 h.p. Westinghouse Type 1426 motors supply the motive power for the car. The motors are situated parallel to the longitudinal axis of the car in a specially constructed cradle which forms a torque arm. From each of the motors a propeller shaft leads into a differential on the car axles through a universal joint. Two 60-inch springs, each underslung with respect to the wheel axles and affixed to the car body through shackle bolts, give the car riding qualities never before attained. The entire drive mechanism so constructed forms a free moving unit, whose action does not affect the stability of the car body.

The wheels are attached to the axles through knuckle joints, somewhat on the same principle as that used on the front axles of automobiles. This permits them to turn without requiring any movement of the entire axle. The wheels are, of course, turned by the tracks on which they run, but the differential permits them to follow the curves closely without grinding on turns.

An internal expanding brake on each wheel, actuated through an electro-pneumatic control, with metal to metal contact between brake band and drum, is practically noiseless. A cane type emergency brake, working through cables, provides a double and an independent brake control.

The body of the car is built up

from two longitudinal steel members, as is the chassis of an automobile. However, in the new car, clever designing has removed everything which might show under the body skirt, so that nothing except the wheels and wheel cradles are visible below the car body.

So far as usual practice in design is concerned the car body is almost as radical as the driving mechanism. It is completely stream lined, front and back. The car steps are but 13 inches from the street level, giving a low hung body which necessitates wheel housings within the car, but these are so cleverly concealed under the seats that it is difficult to find them. A two-bar chromium-plated steel bumper is placed at the front and an additional rack-type life-guard is installed just in front of the wheels.

There are ten windows on the left side of the car, eight windows on the right side where the doors are situated and four in front. Two of the front windows are curved to follow the outline of the car. All glass is shatter-proof.

A visor, somewhat similar in design to automotive sedan bodies, covers the front and back of the car to keep out sun glare. Fittings throughout the car are of aluminum, except in several small fittings which are nickle-plated brass.

Within the car there is an air of luxury. All wood work is mahogany finished. Sheet rubber, with a mosaic pattern, covers the floor, and all seats within the car are of the deep spring design, covered with hand-buffed hyaline leather. The windows are weather stripped. To add to the smart appearance, no wires show inside the car. The electrical units, such as circuit breakers, are concealed in a cabinet at the back of the car, under the rear seat. The electrical units in the front of the car also are concealed in a desk type cabinet, so that only one or two control handles are visible from the motorman's seat. The motorman sits well below the line of vision of passengers, room for his feet being provided in a well sunk in the floor. The fare-box is air-operated and so placed with respect to the front door that it in no way obstructs the passage. The finish of everything within the car is comparable to that given fine coach work, so that restful riding is effected both physically and mentally. The car, of the one-man type, has full safety equipment. The motorman must have either his hand or his foot on controls while the car is in motion or it is automatically stopped.

Another feature is a treadle control for opening and closing the rear door. The passenger may step down on a rear step and as soon as the car stops this door will open and remain open until the passenger has left the car. The car is stopped automatically as long as the door is open. Double folding-leaf doors are at the front and rear of the car.

The two special high-speed 50 horsepower motors supplied by the Westinghouse Electric and Mfg. Co. provide the car with approximately 2½ horsepower per seated passenger, an ample margin of power for accelerated service under all conditions. Since the car is designed solely for city traffic its high-speed limit is set at 35 miles an hour, an ample speed for modern city streets. The control is Westinghouse HL cabinet.

C. O. Birney, designer of the new car, introduced the light-weight one-man safety street car about 15 years ago.

The New Birney Is a Luxurious Street Car Weighing 18,000 Pounds, With Seating Capacity for 39 Passengers. You Can See Out of It, too, Without Sitting on Your Neck.

Editorial Comment

The Unfailing Couriers

WE ARE all mightily interested in the new transportation of the clouds. We do hope, however, that the people will not forget in their enthusiasm just one or two very important points. They belong in the record. We are entering them as a matter of personal privilege.

For more than a hundred years steam railroads have been doing the world's work, regardless of weather. Rain or shine, wind or calm, through snow and hail, while the track was there the trains kept moving, and for most of the hundred years the track has not disappeared for very long.

In times of great national disaster the first help always has come from the railroads, mostly without compensation and without thought of it. Cut this out and paste it in your hat.

When a dirigible or an airplane is about to go somewhere it goes only when the weather is just right. This is perfectly sensible, Safety First, the proper thing to do.

But the people do need to be reminded once in a while that the railroads are the dependable friends of every industry in America, the principal and always the most trustworthy form of transportation the nation or the world ever has known. Because their great magnitude is beyond the mental processes of the average man they have seldom had a square deal. In little minds beating a railroad has been as gleefully done as beating the government, but wise men and women know that the entire country looks now, every hour, and is likely for many a year to look to one principal, timely and helpful friend—the railroads.

The Fifth Amendment

Why not have a Fifth Amendment Week in this country? We have Fire Prevention Week, and Thrift Week. Clean Up Week and Dress Up Week. We even have a Constitution Week to make the boys and girls, and some of the still-credulous grown-ups, realize the blessings of representative governments under about five million laws—five thousand of which are directed exclusively to the patriotic purpose of regulating the railroads.

But no one ever mentions the Fifth Amendment. Particularly the last twelve words. Apparently the only law the average citizen knows anything about is the prohibition law. The mere mention of this act is enough to start a flood of indignant protest against the governmental invasion of private rights, infringements of personal liberty, the Declaration of Independence, state's rights, Plymouth Rock, and the sanctity of the home and of the traveler's suit case.

But no one ever protests against the public use of railroads—which are private property—without just compensation, and this is what the Fifth Amendment to the Constitution says must not be done in the United States. These are the words, 12 of them: "Nor shall private property be taken for public use without just compensation."

Not even the 18th Amendment has been violated more flagrantly and persistently than has this mandate of the Constitution, by the government itself in its treatment of the railroads. Through its failure to obey the plain provisions of the Transportation Act of 1920 the Interstate Commerce Commission, representing the power of government, has permitted the public to confiscate by regulation a large part of the value of railroad property. You needn't take any one's word for this. The government's own records prove it.

"What Name, Please?"

The man who rises in a convention, bellows out, "Mr. Chairman," and begins to talk without giving his name or telling whom or what he represents, may not in the average case, be aware that he is violating good manners and parliamentary rules. Neither does he realize that he is creating the impression that he believes himself known to the world at large.

Ever since conventions were invented these facts have been dinged into the heedless minds of delegates. But the old neglect continues, business is delayed, other delegates are irritated, the official stenographer turns black in the face, the chairman hammers the table with his gavel and wishes it was the offender's head, no one hears what the egotist says, if anything, and all the time he may have had a really valuable suggestion to make. Once in a blue moon some of these extemporaneous interrupters say something worth hearing, but no one hears it.

Kin to the Grade Crossing

We have done a good bit of talking as the years have passed about the reckless, careless or drunken motorists who drive on the track in the face of an approaching train. It has long been the prevalent idea that a man who tries to beat a train over a grade crossing is worse, if possible, than the man who rocks the boat, but what are we to say of the man who walks into an airplane propeller and loses an arm or his head? This form of accident is becoming almost as common as the grade crossing tragedy. If it is to

be prevented a wall-net will have to be raised from the plane's door before that door is opened for the passengers to enter or leave. An alley or chute from the door to a safe passageway, or a net spread around the propeller the instant the plane lands would stop the death-toll. This is the precaution taken by the Western Air Express. No passenger using that air line can get within 20 feet of a propeller.

Some Bus Economics

To study the economics of bus operation, the American Electric Railway Transportation and Traffic Association, through a committee, sent a questionnaire to representative companies engaged in this form of transportation.

Seventeen companies reported on operations covering 170 routes and involving 3,190 buses of all types. In 1927 these reporting companies operated 101,576,987 miles and carried 459,934,904 passengers. In the matter of city bus routes to replace railway lines, four companies stated the substitution was made to avoid unusual paving charges; two substituted buses when an extension to existing railway track lines would have been required; others reported there was an immediate necessity for new rolling stock, and buses were purchased instead of electric cars. Apparently the consideration that has most influenced the substitution of buses for electric cars has been the pressing necessity for new investment in non-profitable railway lines.

Five companies reported that the substitution had been justified by savings either in operating costs or in investment which would have to be amortized over a short period of time.

The Editorial of This Edition

IN THAT charmingly fantastic story, "The Night Mail," Rudyard Kipling wrote an astonishingly accurate report of the marvelous voyage of the Graf Zeppelin, but of course had no idea he was doing it. Kipling believed, as many did and still do, that the dirigible ultimately will be the universal transportation for human beings, at least over very long distances, and especially over oceans. When it was written "The Night Mail" was accepted as interesting reading by the average person. No one, except the world's scientific workers who, fortunately, are not average persons, believed the book described anything at all probable, any more than they did when Jules Verne brought out his "Twenty Thousand Leagues Under the Sea." Still, when Verne wrote his book submarines already had been built and tried with some measure of success, even if the first vessels were not quite so comfortable as the Nautilus. Dirigibles were being planned when Kipling wrote his book, so neither of these men offered original ideas. Both did much, however, to prepare the world for what they believed might some day be commonplace.

The Graf Zeppelin's voyage has "paved the way," to use an old newspaper bromide, for aerial transportation of passengers, mail and freight in a reasonably safe manner. The Graf Zeppelin was the second ship of the kind to cross the Atlantic—the Los Angeles having been the first, and with a better time record—but the Graf Zeppelin carried 60 persons, mail and express, covered a route nearly twice as long as the first ship traveled, and did it in a thoroughly workmanlike way, without any great danger to life, except for one injury to a stabilizing fin due to the fury of a storm.

The Graf Zeppelin's feat has stirred up much interesting discussion, especially among the war-like proponents of aerial preparedness who see in Dr. Hugo Eckener's successful flight a future menace to America. Now, instead of more and bigger battleships we must have fleets of dirigibles, according to these aggressive patriots, none of whom takes the trouble to suggest what might happen if a dirigible really tried to approach our shores uninvited and with an unfriendly objective in view.

It is more important than anything else right now to remember that Doctor Eckener's voyage over 6,000 miles of land and sea, his enthusiastic reception in the United States and his publicly announced program for the future, form the most interesting chapter in aerial transportation that the world has yet seen recorded. We have no time or disposition for any other thought. The voyage was a most significant contribution to the advancement of aviation.

The return voyage of the Zeppelin to Germany convinced Doctor Eckener that such ships must be much stronger, with more powerful motors before regular service across the Atlantic can be accomplished safely. It is quite evident that radio weather reports alone made it possible to cross the ocean either way. Had it not been for this marvel the Zeppelin might have been wrecked and 60 lives lost or endangered. As it was, especially on the first voyage, the ship had to chase around over the water for many hours avoiding destructive storms. Doctor Eckener is a big man mentally as well as physically. His courage in admitting frankly the danger of service with the present ship is highly commendable.

The Comfort in Swearing

When the Rock Island Lines organized an anti-swearing society, last spring, this department expressed some uneasiness about the future of that property. A few railroad men wrote in support of the theory that certain things simply could not be done without recourse to emphatic language, yard-work, golf, losing the biggest fish, running a print shop, and so forth.

Now comes the stately North American Review with an article declaring that swearing, when done properly, which means without vulgarity, is one of life's most important essentials. History shows that swearing is hoary with antiquity. All through the long-neglected classics in prose and poetry, Shakespeare and all the rest of the deathless contributors to literature, swearing was quite customary. Washington, the Review declares, was one of the world's greatest swearers. One of his officers once wrote, "It was at Monmouth, a day that would have made any man swear. On that day he swore till the leaves shook on the trees! Admirable! Charming! Never before or since have I had the pleasure of listening to such swearing. Sir, on that ever memorable day, he swore like an angel from Heaven." Washington would have been an admirable railroader, but he would have frowned on the swearing one hears in the average switch shanty. This is mostly filth.

Almost all really big men have some form of swearing. We remember hearing Carl Gray, president of the Union Pacific, blow up verbally one day, under the most trying circumstances, but his most reckless expression was, "Well, by George!" That was swearing. It relieved his feelings.

The Rev. Charles Sheldon of Topeka, known to every man on the Santa Fe, the Rock Island, the Union Pacific and the Missouri Pacific, a man whose religious or semi-religious books fill nearly half a column in Who's Who in America, has a most emphatic way of swearing. After making a dreadfully dub shot in a golf game one day on the Shawnee course, the minister dropped his clubs, lifted his hands toward Heaven, and then, turning a solemn face toward his partners said, "Now, if you'll step aside for a moment I'll commune with Nature and things."

Can anyone doubt that Doctor Sheldon swore as sincerely as Washington that day—in his own way? If railroad men would train themselves to swear in this mighty and sincere manner they would be all the better for it. To try to stifle expression in life's tragic moments is poisonous. Perhaps you remember the lines:

> Alas! for those who never swear,
> But die with all their cussing in them!

Now You Tell One

Maybe everything hasn't been just as smooth for you as you'd like to have it lately, or for that matter for several years. The wife, maybe, doesn't laugh as much as she once did. Try this on her; it is fresh from Washington, and is guaranteed to give every housewife a good laugh. Then, too, it shows what wonders can be worked with figures. Two and two, you know amount to four in the hands of ordinary persons. But the department of labor just puts two and two together and gets 22:

Living costs in American cities now average from 16 to 25 per cent lower than in 1920, says the United States labor department. Prices of food, clothing, rent, fuel, light, housefurnishings and other commodities are included in the department's investigation.

In Detroit, it is shown, these necessities of life can be purchased now for about 25.3 per cent less than eight years ago. In Boston they have declined 21.8 per cent during the same period. In Seattle the drop is placed at 21.2 per cent, in New York at 20.4 per cent, and in Chicago at 20.1 per cent.

Residents of Buffalo are now able to obtain their living essentials at an expenditure 10.3 per cent less than in 1920, the labor department says, while in San Francisco the average saving is 19 per cent, and in Pittsburgh it is 18 per cent.

The people of Philadelphia, Los Angeles and New Orleans are found to have benefited to the extent of 17.9 per cent, 17 per cent and 16.7 per cent respectively.

For the entire United States an average drop of 21.5 per cent is reported.

Wheat and the Canal

During the fiscal year ended June 30, 1928, a total of 3,035,884 tons of wheat passed through the Panama Canal eastbound from the Pacific to the Atlantic. Of this, 1,901,241 long tons originated in Canada and 1,124,588 long tons in the United States. Over 98 per cent was consigned to the United Kingdom and Continental Europe. This represented almost 15 per cent of the entire eastbound cargo through the Panama Canal and was a considerable increase over previous years, there being less than one half as much wheat moving in the same manner in the fiscal year ended June 30, 1927.

This appears to be of considerable interest to the railway world inasmuch as, at first thought, it appears that this is a large diversion of traffic from the railroads.

The average carload of wheat is 42.3 tons of 2,000 pounds so that 1,124,588 long tons, represents 29,776 carloads.

Looking further into the statistics we find that in 1927, Montana produced 35,026,000 bushels of wheat more than the five year average of the years 1922 to 1926. This is equivalent to 939,035 long tons increase in production while the increase in the amount which originated in the United States and passed through the Panama Canal was 385,137 long tons.

A large part of the wheat produced in the United States which passed through the Panama Canal found its way to Pacific ports from Montana over the railways which hauled it between 800 and 1000 miles from the point of production to the Pacific Coast.

Montana lies nearly equidistant from St. Paul and Duluth on the East and Portland and Seattle on the West, and so far as the rail carriers on whose lines this wheat originated are concerned, they secured about the same haul to the Pacific ports as they would to St. Paul or Duluth. But for the Panama

Canal, it might all have moved to eastern points via the Great Lakes and Buffalo or entirely by water down the St. Lawrence or via all rail routes to New York. The diversion of the wheat through the Panama Canal therefore affected eastern roads to a much greater extent than it did the western railroads.

If this had moved east via Duluth, Great Lakes and rail, Buffalo to New York, it would have yielded the eastern railroads $2,141,215 in revenue for the service between Buffalo and New York. If it had moved all rail via Chicago, it would have yielded the railroads east of Chicago, $7,557,231 in revenue.

Most of the criticism in connection with the diversion of traffic to the Panama Canal has originated on western lines serving the Mississippi Valley. It would appear their interest in this particular movement of wheat was slight except as it puts the wheat from Montana into competition with that of Kansas markets or the markets of England.

It appears that the amount of wheat moving from Montana through the Panama Canal for export was only about one-third of the increase in the Montana wheat crop, the balance of the crop moving through other channels on the railroad to destinations within the United States. The increase in Montana's wheat production of 1927 over the average for the five years preceding, was as follows:

Winter wheat	5,571,000 bushels
Spring wheat	29,455,000 bushels
Total	35,026,000 bushels

The complaint of the western lines serving the Mississippi Valley is that the Panama Canal has diverted traffic from their lines which would otherwise move across the continent, but it appears that in the movement of this wheat, the eastern lines have forfeited the traffic rather than the western lines although the middle western lines are little affected by this particular movement.

With regard to the 1,901,241 long tons of wheat originating in Canada. This was an increase of 1,183,321 long tons over the shipments of the previous year. It was practically all destined to ports in the United Kingdom or Continental Europe. In 1928 a bountiful crop of wheat was produced in Alberta and naturally moved over this route. This would be hauled 800 miles or more by the Canadian railroads to Vancouver for shipment by vessel.

A study of the Panama Canal records shows that the largest movement of wheat was during the early months of the year, January, February, March, etc., during the period when the Great Lakes were closed and the channels of commerce east via water from Port Arthur were not available for the wheat of the western provinces of Canada.

Those who are interested in the St. Lawrence waterway might well take note of the fact that the greater part of the wheat from western Canadian provinces which passed through the Panama Canal moved out during the winter months, and is evidence that even this class of traffic will not wait for the seasonal opening of the waterway channels when Europe is hungry and other means of transportation are available.

"It's a Poor Rule——"

Once more the rumor is current that when congress gets together something is to be done to curb the increasing interference of government in business. How railroad men will smile! It makes a difference whose ox is gored, doesn't it?

Not long ago, in a great western city, a business man needing money for some special purpose offered railroad stocks as collateral. "These stocks don't represent very much of anything," said the wily banker. "They have no assured earning value. We prefer bonds. This road is paying its interest but it isn't distributing any dividends."

Imagine the man's embarrassment! Stocks, the banker told him, represented ownership only after the bondholders have theirs tucked away safely. It was a fine lesson for the business man, but he went out angry. Before he left, however, it developed that he knew very little about his stocks or about the road that issued them. Probably he never had heard of Senator Smith Brookhart of Iowa, either, or that this busy solon is going to introduce a bill in the next congress limiting the profits of all industries in much the same way that railroad profits are limited. It was sure to come.

Railroad men have been declaring for years that unless the public took intelligent and sympathetic interest in the wrongs being imposed upon the railroad industry, the public itself would suffer, and this is precisely what is going to happen.

Big Business is as free as the wind in contrast with the railroad industry. Big Business still has the privilege of making its own prices. It still has the right to make as high a net return on its investment as it can get from the public. It still has the right to keep what it gets after it pays its taxes and operating expenses. Big Business does not have to share its earnings, should they exceed a certain percentage, with Little Business which has not been so successful. Big Business does not have to contribute to a sinking fund to help Little Business. Big Business may build an addition to its plant without consulting any authority except that contained in the building laws or ordinances. If earnings decline, Big Business may close down a part of its plant, or it may cease operations temporarily. And Big Business is going to blow up with a loud report when the government attempts to restrict its net return to five and three-quarters or any other certain per cent.

The situation is pretty bad. Twenty-six Class 1 roads operated at a loss in the first six months of this year, ten in the eastern, one in the south, and 15 in the western district. Their stocks would

scarcely be taken gleefully as collateral for a loan at the home bank.

Five thousand laws have done this thing. Still, as a certain congressman once said, "It is never too late to amend."

The Get-Together Spirit

A story used to be told, years ago, about a farmer out in Kansas who declared there wasn't a man in the county who would cooperate with him. Four or five farmers with four or five ideas about how to get together, never did accomplish anything for the common good. The lack of the get-together spirit is what has hurt the farmers everywhere.

When one reads the story about a little group of railroad presidents meeting in Washington two or three weeks ago to tell Commissioner Porter what they thought about consolidation the old Kansas yarn comes back. Each of these executives is a thoroughly sincere, perfectly competent man alive, or so he believes, to the best interests of the properties he is managing. Each of the four or five has a different consolidation scheme, and practically every such scheme, it is said, would conflict with the Sherman or Clayton Acts, and not one of these men would wilfully violate a law.

Disagreements of this kind in years gone by have brought upon railroads the present overwhelming government regulation. In the presence of such attitudes one wonders just what the Interstate Commerce Commission intends to do about the plain requirements of the Transportation Act as to consolidations. And one wonders, too, what the commission would have done in the days of Jay Gould and Commodore Vanderbilt.

Where the Freight Goes

When a road has hauled a few thousand empty cars to the west coast for freight and then discovers it isn't there, it makes the powers wonder where the net is coming from. Where more and more of the freight goes is disclosed by a recent bulletin issued by the American-Hawaiian Steamship Co.

October, says the announcement, always is a pretty lively month for the steamship people. The writer continues, "In addition to the large regular seasonal movement of dried and canned fruits. unprecedently heavy offerings of general cargo are causing steamship company officials real concern to find space to accommodate them.

"Officials of the American-Hawaiian Steamship Co. announce that although their regular schedule provides for ten eastbound sailings from San Francisco during October, cargo offerings are so much in excess of space allotments that they have chartered the S. S. Manukai, of 14,500 deadweight tons, which was loaded to capacity within five days of the announcement of its charter.

"With the chartering of the Manukai, the American-Hawaiian will handle 24 vessels in and out of its San Francisco terminals during October, transporting more than 90,000 tons of cargo. In six years the growth of the Panama Canal trade has been so great that this company has increased the frequency of its sailings from two a month to better than two a week, and last year paid in canal tolls more than $978,000."

Another Queer Thing

The Rock Island Magazine printed a funny story last month about a passenger on the Rocky Mountain Limited entering the train barber shop while the barber was getting his luncheon. The passenger, the magazine says, "picked up a razor and lathered his face." Life is interesting, isn't it?

Brains in South Africa

It may be necessary to revise our opinion of government ownership of railroads. We have noticed for quite a while that the government-owned South African Railways are advertising constantly—which is the only sensible way to do it, by the way—page stuff in colors, in American magazines. The South African government railroad administration seems to know how to spend money intelligently.

New Evidence

The Illinois Central Railroad Magazine reproduces a letter in its November issue proving, apparently, that the road was running a sleeping car accommodating 39 persons in salons at least two years before George Pullman's invention appeared. This seems to clear the Pullman family.

The Stunt Flyer

In first six months of 1928 there were 390 airplane accidents in which 153 persons were killed and 276 injured, compared with 200 accidents in which 164 were killed and 149 injured in entire year of 1927. Still one must remember most of the accidents involved student aviators and stunt flyers. The competent pilot, and there are many of them, seldom crashes.

In the Midst of Life

Writing about accidents recently, Russell M. Arundel in Popular Mechanics, says the most dangerous hour of the day is that from 5 to 6 o'clock. It depends on where you are, Russell. In a motor car, near a railroad track, walking along a street, every hour is dangerous.

"Let us try to so live," said Mark Twain, "that when we die even the undertaker will be sorry."

This Isn't the Main Entrance to the Santa Maria Inn; It's Just the Welcoming Doorway.

The Santa Maria Inn

"There is nothing which has yet been contrived by man," said Samuel Johnson, "by which so much happiness is produced as by a good inn." The truth of the matter and a solemn regard for accuracy compels the admission that what Sam really said was, "a good tavern or inn," but Frank McCoy, who operates the comfortable Santa Maria Inn, half way between Los Angeles and San Francisco, censored the quotation out of respect for the cultured travelers entertained there. You never can tell. Once in a month, perhaps, some weary motorist may be looking eagerly for a tavern, but it's a safe bet they all want an inn, and there's always a drug store handy.

A good many thousands traveling over the coast highway have spent the night at this homelike resort in the years of its existence, nine miles from the noise of railroad trains but close to the ocean, in a clean little city of 8,000 called Spotless Town by a recent visitor, and many go back again. Like the famous Mission Inn at Riverside there is more in this house than bed and food. Important as these are for every traveler, the memory that lingers longest, perhaps, is of flowers and restful chairs with reading lamps in unexpected corners and a sense of quiet almost as complete as in a public library, and if there is any better simile we don't know it. "Whoe'er has traveled life's dull round," said Shenstone, "where'er his stages may have been, may sigh to think he still has found, the warmest welcome at an inn."

What Causes Damages

Not all the shocks producing damage to lading and equipment are produced by allowing cars to strike each other in coupling. Considerable damage may be and is done through improper methods of handling the locomotive. Consider for a moment a heavy locomotive coupled to 50 or 60 cars, with the slack stretched; a signal is given which necessitates pushing the cars. There may be 50 or 60 feet of slack in such a train. If the throttle is opened suddenly and heavily, the engine may attain a speed of three or four miles an hour before the other end of the train begins to move. The last few cars to move are suddenly thrust forward, while cars in the middle of the train are being crushed through the energy being produced by the locomotive and cars close to it, and the cars at the extreme end of the train which are required suddenly to assume a speed of from three to four miles an hour.

If, under these conditions, the movement is reversed, the slack is suddenly pulled out of the train, which results in the cars at the extreme end being jerked off their feet, so to speak. Shocks are produced under such methods of such magnitude that the equipment is unable to withstand it. This results in damaging the entire structure of the car, its lading or complete failure of the draft gear. No loss of time would result from moderately bunching or stretching the slack under these conditions, before opening the throttle heavily.

The surest way to establish your credit is to work yourself into the position of not needing any.

Poughkeepsie Bridge Across the Hudson River.

Trucks Save Money in Bridge Work

Reports in Boston Meeting

By A. C. Blake

SIXTY or more booths with interesting displays of building materials and railroad equipment took up a good deal of the time and attention of 300 or more delegates and their families attending the 38th yearly convention of the American Railway Bridge & Building Association and the Bridge & Building Supply Men's Association at the Hotel Statler, Boston, October 23-25.

George Hannauer, president of the Boston & Maine, welcomed the convention, reminding the members that this was the first time in more than 20 years that the association had met in Boston. Mr. Hannauer's welcome was responded to by C. E. Smith, vice president of the New Haven System, who is a past president of the association.

Reports presented during the sessions were of unusual excellence and timeliness. These reports touched upon a variety of subjects, among them being those describing the use of motor trucks for handling bridge and building materials, cooperation between stores departments and the field forces; jacking culverts through roadbeds under traffic; the control of motor car accidents, painting, emergency work, wrecking and salvaging buildings, operating and maintaining water stations, and the construction and placing of concrete slabs. H. I. Benjamin, assistant engineer of bridges for the Southern Pacific, described the work of investigation of conditions for foundations of the proposed bridge across Suisun Bay on the San Francisco-Ogden line. This bridge, as this magazine has already described it, is to be more than a mile long and will involve expenditures of about $11,000,000.

J. S. Huntoon, assistant bridge engineer for the Michigan Central, reported as chairman of a committee investigating the use of motor trucks instead of work trains in handling bridge and building materials. The importance of daily reports of costs was emphasized, and a form was presented for entering all the numerous items showing just how costs should be segregated. The report said in part:

In order to handle revenue freight more efficiently, some railroads have considered the substitution of motor trucks for work trains for the handling of bridge and building materials and supplies. Where it is practicable to truck less-than-carload lots of material short distances, more equipment is made available for revenue service. There is a tendency to ship light bridge and building supplies by baggage car; this practice should be discouraged where the haul is within the economical trucking radius of a terminal. Emergency repairs to coaling and water stations may also be expedited by trucking men and materials, thus restoring the facilities to service and possibly eliminating overtime.

Suitable highways, preferably paved, between initial and terminal points, are essential for efficient trucking service. Due care should be used in the selection of the make and capacity of trucks, as those of a greater capacity than required result in unnecessary operating expense.

Owing to the nature of the motor truck, the most expensive part, the power unit, must stand idle while the load is being handled. The use of trailers reduces the idle time consumed in loading and unloading, when it is expedient to increase the average load.

The increased load capacity is possible because the load is distributed over more wheels and axles. Stringent legislation limiting the allowable wheel or axle loads on public highways makes the use of the trailer imperative where large loads must be hauled. Where there is a necessity of adapting the trailer to loads so awkward in shape, bulk or weight that the motor trucks cannot handle them profitably, the trailer can be designed to meet these exacting requirements. The trailer method of transporting material cannot be applied to every hauling problem. It is questionable whether it can be applied to the distribution of all bridge and building material, owing to the character of the material to be hauled, facilities for loading and varied points for delivery.

Motor truck transportation should be approved only after a scientific survey and analysis of the haulage problem has been made in each individual locality. Having a thorough knowledge of the situation, bridge and building executives should recommend the units to render efficient service at the lowest cost.

In estimating the cost of any truck installation, the first step is to decide upon the size and type of equipment. The user should know his average daily tonnage in both busy and dull seasons and the average length of haul. If this information is not available, it should be secured by the use of rented trucks so that the railroad management can determine the size and number of motor trucks required.

The prices of trucks are usually quoted on the chassis f.o.b. factory. The cab and body should be selected for the requirements of the service. There is a wide variation in price, due to difference in design. The following prices with respect to capacity are approximate:

Capacity in tons	Cost including stake body
1	$1,000 to $1,725
1½	610 to 2,291
2	1,645 to 3,750
2½	3,325 to 4,525
3	2,185 to 3,750
4	4,870 to 5,100
5	5,400 to 5,942

The use of motor trucks for handling bridge and building materials should be considered from the standpoint of economy. The indirect benefits are the saving of freight cars for revenue service. The Chicago, Milwaukee, St. Paul & Pacific, with 12 trucks in service, saves 50 revenue cars daily; the Southern Pacific saves one-half of a revenue car per day for each truck in service; the Elgin, Joliet & Eastern with one truck, saves from one to two cars per week.

It is difficult to estimate the direct saving, as there are factors entering into the situation on which no data are available. The Southern Pacific estimates that trucks will save 50 per cent of the cost of moving materials with a motor car or push car, and 75 per cent of the expense of handling with a work train. The Akron, Canton & Youngstown, with one truck, saves $1,200 annually.

The Missouri Pacific shows a saving of 32-man-hours per day per truck as compared with the delivery of the same material with a push car or motor car. This time, computed at 60 cents per hour, makes a daily saving of $19.20, which will pay for the original investment of a 1½-ton truck in approximately 34 days.

The first truck purchased by the New York, New Haven and Hartford saved enough in two months to pay for the original investment and leave a surplus to pay for gas and oil. It is estimated that each truck saves $1,000 annually.

It is estimated that the 15 trucks in service on the Delaware, Lackawanna & Western save $5,000 per year.

W. A. Batey, general bridge and building inspector for the Union Pacific at Omaha, reporting for a committee on controlling motor car accidents, said it is estimated there are 55,000 motor cars in service on railroads of this country, and that they cost from $11,000,000 to $12,000,000. Of this number about 40,000 cars are used in maintenance work.

The fact that practically no physical effort is required in operating these cars, the report said, has resulted in leaving the full energy of the men available for work when the job is reached. One road has reduced the time moving from point to point and to and from the work 50 per cent by an intensive time study of bridge and building gang operations and the resultant programming of work, with the elimination of the haphazard handling of gang movements.

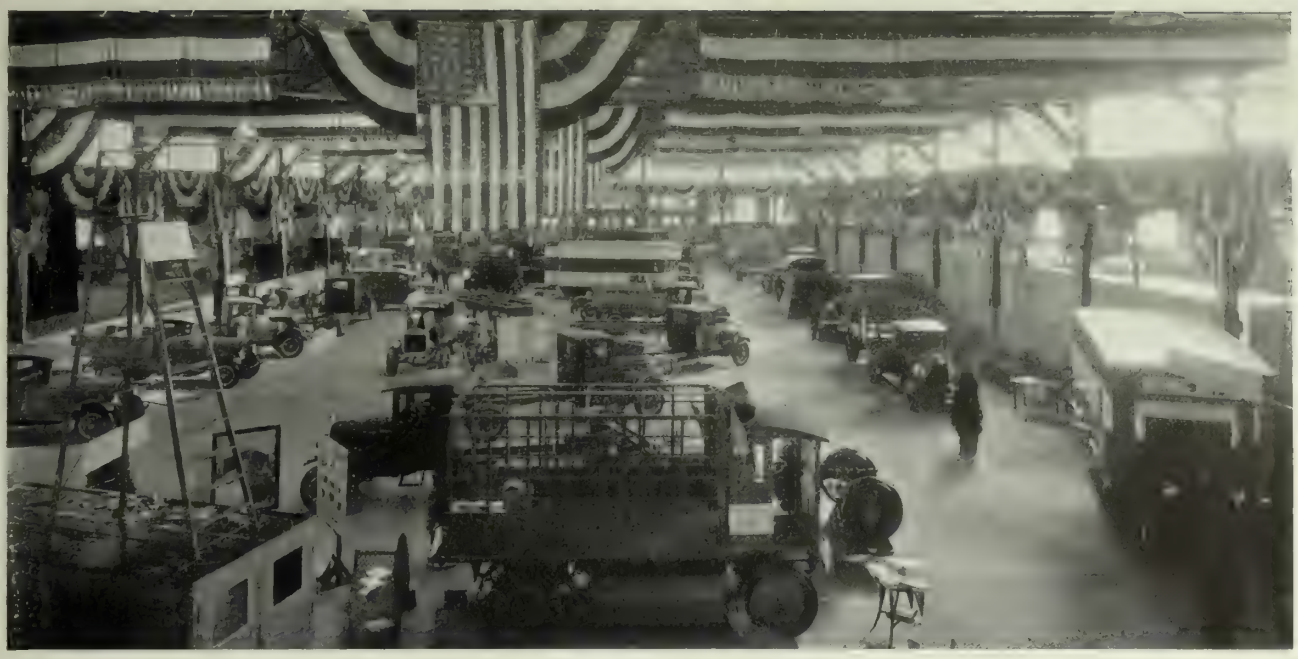
Each time a motor car is used, a potential opportunity is presented for accident or personal injury. To forestall accidents at the source requires that the motor car be properly equipped with safety devices, be dependable at all times, be correctly and constantly maintained and be sensibly used.

The committee presented a lengthy set of rules for employes' guidance in operating cars to avoid accidents.

Displays by the supply men's association ranged from paints to roofings, saws, valves and other railroad equipments. Most of the booths had two men on duty at all times who were not only in constant attendance but were anxious to explain the virtues of their products to all who cared to listen. The exhibits showed nothing particularly new in the field of building and railroading. No new inventions were brought forward although there was some improvements on many pieces of railroad equipment shown. The Hastings Signal & Equipment Co. had a very interesting display of automatic signals. The Dewalt Products Corpn. had a new saw especially adapted to sawing of studs, rafters, braces, door frames, baseboards, window sashes, cupboards, shelves, and many other such jobs. The Armco Ingot iron was also prominently displayed. This iron is used for all purposes from roofing to storage tanks and complete warehouses. It is of course ideal for building where fireproof protection is desired. The paint companies were well represented. Sherwin-Williams had an attractive display with Arthur Larkins and H. A. Sturn in charge. The Pittsburg Plate Glass Co. was represented by James Mowry and John Leonard.

The evening of the first day W. J. Backes, chief engineer of the Boston & Maine, and C. E. Donaldson, supervisor of bridges and maintenance for the Central Vermont gave illustrated talks at a smoker for delegates. They chose for their subject, "New England Floods of 1927." With the pictures they told how the New England railroads overcame the handicap of the flood that had seriously crippled schedules and destroyed thousands of dollars worth of buildings and equipment.

F. C. Baluss, office engineer for the Duluth, Missabe & Northern, presided at all sessions. The annual banquet was given in the Georgian room of the Statler with special entertainment features.



In the Truck Exhibit During the Mid-West Motor Truck Transportation Congress at Indianapolis, Last Month.

The Truckmen Get Together

Midwest Meet at Indianapolis

By J. W. Parry

THE LAST day of the Mid-West Motor Truck Transportation Congress held in Indianapolis, October 23 to 26 inclusive, brought to a close the first successful event of its kind in the motor truck history. Interest in the wide scope of topics and subjects for the addresses, open forum discussions and dinners, was displayed by the 6,000 motor truck operators registered during the four-day session.

The program covered all phases of motor truck transportation service to divisions of all business, particular attention being given to the business of the manufacturer, merchant wholesaler and farmer, and their particular motor truck transportation needs. One hundred and sixty interesting displays of motor trucks, equipment and accessories filled the main auditorium of the manufacturers' building at the State Fair grounds where the congress held its session. One of the outstanding features of the display was the absence of souvenirs, and this kept away the usual collectors. Every exhibit at the show was attended by competent representatives, and a great deal of valuable constructive work was accomplished.

One exhibit that attracted considerable attention was that of the Weldmech Steel Products Co., Hattiesburg, Miss., a one-piece steel bottlers body. It was especially designed by engineers in co-operation with bottlers and truck manufacturers after an exhaustive study of bottled beverage delivery problems. It has steel floors to reduce friction in case sliding and eliminate wear and tear on cases due to splinters and other projections found in wood flooring. The joints are special welded, with joint reinforcements and bracing elements to insure durability under all delivery conditions.

Coal merchants were especially interested in the St. Paul Hydraulic Hoist, on account of its many exclusive features, the low horsepower required to operate it, and the small amount of chassis space required to install it.

In the joint exhibit of electric trucks at the congress under the auspices of the Electric Transportation Club of Indianapolis, one of the trucks shown was a model similar to those used in New York City by the Knickerbocker Ice Co. Another was a model built for use in milk delivery generally, but has been adopted by the light company in Indianapolis for use in its street lighting department, by placing a folding ladder on the top. In addition several types of motor power storage batteries were interesting parts of the exhibit.

Highland cabs for heavy duty trucks exhibited a new model built of 18-inch gauge steel with steel roof, in various sizes up to four-

man cab for trucks of any capacity, which attracted the attention of excavating contractors. The American Car and Foundry Co. exhibited a new 1½-ton truck, which is one of the high speed trucks with 198-inch wheel base, six cylinder, 3¾ by 5-inch Hall-Scott engine driving through a 4-speed transmission to a bevel gear on rear axle. It has four-wheel expanding internal brakes 17¼ by 3½ actuated by vacuum booster brake fitted with Delux cab of coupe type.

The Red Ball Motor Truck Corpn. displayed one of its new van bodies on a Graham Brothers chassis 183-inch wheelbase; a Ford truck chassis and a Chevrolet truck chassis. The body is suitable for long distance hauls for household goods, wholesale grocers, freight haulers, furniture manufacturers, and in fact wherever a light durable, weather-tight body is required.

Freeman four-wheel drive trucks, Stewart Motor Trucks, the Fager Hydraulic Hoist & Body Co., Chevrolet Trucks and the Walker Electric Trucks were among the exhibitors. The Fruehauf Trailer Co. of Detroit had a very interesting display. The Utility Trailer Manufacturing Co. of Los Angeles displayed a six-wheel unit which attracted much attention. Whitehead & Kales Semi-Trailers came in for their share of attention, and many accessories, including brake linings of all descriptions, tail and head lights, oils and greases, safety devices, springs and Pierce governors were displayed to good advantage.

One of the interesting subjects discussed was that of tariff legislation and regulation, intra and interstate, by Frank Schmidt, president of the Ohio Association of Commercial Haulers. According to Mr. Schmidt there has been a determined effort to place motor truck transportation under state laws, which he contends is purely selfish as the law will hinder the progress of the motor truck industry, and breed law violation. The matter of regulation is one of deep concern, he said, and the industry is still in its infancy. Only by years of experience can the truck be regulated, and at this time every truck operator is getting enough experience, with the different and various laws in every state. Meetings of this kind, Mr. Schmidt said, will in time bring about proper regulation and harmony and reciprocal relations. Border warefare has been one of the worst evils that the trucker has had to deal with. Federal regulation would not and could not regulate state property, and since the highways are the property of the individual states, regulation at this time seems impossible.

However, before the railroads were regulated by the Interstate Commerce Commission, Mr. Schmidt said, the state laws were entirely different, and eventually after fighting such regulation for years they have found it satisfactory. It took years, however, for the railroads to discover that interstate laws were a benefit to them. It will take years, he said, for the motor truck industry to find out what laws and regulations will benefit the industry. Intrastate laws are somewhat difficult to comply with, but in time these will all be ironed out to meet the growing demand of motor truck transportation.

Rates on commodities was another angle that caused some lively discussions. A. M. Pearson, transportation engineer, Federal Motor Truck Co. of Detroit, believed he had solved the problem, and advised that the carrying charge and the delivery charge be the same, and the mileage be figured at a fixed rate. He cautioned operators to remember that bulky articles took up more space even if they were not so heavy, and the rate on bulky materials should be fixed accordingly. Rates is a matter of the size of the commodity as well as the weight, but as yet no definite rate schedules are in effect.

Friday being the last day of the congress was given over entirely to the displays. At the closing of the congress announcement was made that an organization to be known as the Truck Association Executives of America had been formed. The purpose of the unified body will be to serve as a clearing house for ideas and plans of solving properly many common problems confronting state organizations along motor truck transportation lines. This feature, among many other functions, will coordinate the present more or less scattered efforts of individual groups, thus aiding and benefiting hundreds of thousands of motor truck operators everywhere in standardizing and improving their service in general.

W. H. Brearly of Philadelphia was chosen chairman of the new body, composed of officers of 19 state motor truck associations all over the country. H. C. Kelting of Louisville was elected vice chairman, and T. A. Horrocks of St. Paul was chosen secretary of the national group.

The eleventh annual convention of the Motor Truck Associations of Indiana was brought to a close by the election of officers and directors. Bert O'Leary, president; Tom Snyder, secretary, and W. S. Frye, treasurer, were re-elected. C. W. Abraham, E. W. Feldman, Tom Snyder and W. S. Frye were re-elected to the board of directors. J. D. Dugan, F. E. Glass, C. W. Haite were the newly elected directors. Re-elected vice presidents of districts were: H. L. Oliver, Muncie; W. T. Collins, New Albany; J. H. Becraft, Kokomo; B. J. Bartlett, Huntington; Walter Wetzel, Evansville; C. W. Haight and E. H. Stockton, LaFayette. Newly elected vice president were: J. O. Killon, Washington; C. E. Morge, Terre Haute; E. W. Feldman, Henry Dithmer, Indianapolis; Ray Shook, South Bend; O. N. Hesler, Elwood, and Frank Wertz, Hammond.

Among the Men Who Do the Work

Efficiency and Common Sense

By J. F. L.

MUCH is being said of efficiency in shops, and one hears the word so often that it doesn't always drive home the thought that it should. Wouldn't it be as well to think of it in the light of plain ordinary "common sense?" As an illustration, a machine was placed in the shop recently and the question of proper location was discussed. The first thing to study was, where is the work coming from that is to be done on this machine?

Second, after the work is finished, where does it go?

The answer was easy: Place the machine so the work will pass by it en route to the point at which it is to be assembled and applied, in the most direct line, without any back-tracking or a round about route.

Any well designed shop for manufacturing is so arranged that the material from the rough to the finished will flow through as easy and with as little restriction as sand will flow through a funnel.

A similar common illustration can be used in handling terminals, freight yards or freight houses—a stream of water. If the water doesn't move freely you search out the narrow places or the spots where driftwood collects, and you open them until the water does flow. In these restricted places one's efforts should be centered.

So in managing transportation, find the neck of the bottle and bend your efforts toward devising ways and means of passing the flow through without obstruction, and at the same time relieve the flow as much as possible by passing it by in some other direction.

Take the machines into the shop to do the work instead of hauling the material a long way to the machines. Using these homely illustrations, and thinking, will solve many complex problems without burdening one's mind with scientific angles. In more simple words, plain common sense, reasoning or thinking will create what we call efficiency.

Patrick J. Connolly.

Analyze all functions of the machine separately instead of thinking of it as a whole, and of all movements at one time.

I recall the first time I had an ordinary quick-action triple valve explained to me. I concluded that any man who knew all about that triple valve was born with special talent and must be particularly brainy. Looking back I firmly believe the instructor wanted me to think just that way. Later, after much study and thought, I mastered the triple valve, and decided that was enough to battle through life, and would lift me above the ordinary mechanic. But about this time the man who taught me the mysteries of the quick action triple valve tried to show me through the engineer's brake valve with the feed valve attachment which, in those days, had five positions.

Well, I just felt that was too much for one man to hold. At any rate it is past history now, but it taught me a lesson and in my efforts to impart similar knowledge to students, I have given it to them in this fashion: Take the triple valve, think of it in this way:

First, the air must pass through the triple valve to the auxiliary until the air in the auxiliary and trainline is equal. While in this position, the brake cylinder is connected to atmosphere through grooves in the slide valve. Then I show them the grooves. That's easy to understand.

Second, service application. In that position the air flows to the auxiliary reservoir, to the brake cylinder, and I show them the means of passage—not hard to understand.

Third, lap; that's easy; as all ports are now closed, plugged, in other words, the bottle is corked. Simple, isn't it?

Fourth, emergency. Nothing to this except that a big opening is made between the auxiliary and the cylinder so the air can get in as quickly as possible so the brakes will stop the train.

Motorman An Interborough Director

Patrick J. Connolly, president of the Brotherhood of Interborough Rapid Transit Company Employes, was elected a director of the system on Sept. 26 at the annual meeting of the company's stockholders. He fills a vacancy on the board.

In a statement issued after the meeting, Frank Hedley, president

of the company, declared that Mr. Connolly's election was the fruition of a policy of allowing employes first-hand representation in the company's affairs.

Mr. Connolly, who is 42 years old, has headed the Interborough Brotherhood since 1919. For many years an employe of the company, he is at present a motorman on the Sixth Avenue elevated line.

An English Old Timer

Although he has never driven an automobile, Dave Bundy of Cowes, Isle of Wight, holds the oldest motor driver's license in England.

Bundy drove the first "road train" in England, the first steam wagon and the first steam wagonette, and in 1898 received a "license for a light locomotive." The license was the third to be issued.

Numbers 1 and 2 were taken out by two Americans long since dead.

Old Time Telegraphers Meet at Omaha

The annual convention of the Old Time Telegraphers' Association was held at Omaha, in September. W. L. Ross, president of the Nickel Plate Road, was elected president and Cleveland was chosen as the convention city for 1929.

A feature of the morning session of September 11 was the ovation to John Lonergan, aged 84, of Lincoln, Kansas. Mr. Lonergan started to learn the Morse code in 1858, when he was employed as messenger by the Wisconsin State Telegraph Co. in Milwaukee. He heard the Lincoln and Douglas debate, and during the Civil War sent various dispatches from the battlefields. In 1869, he received the press reports of the driving of the golden spike, connecting the Central and Union Pacific at Promontory, Utah.

One of Mr. Lonergan's prized possessions is a chair presented to him in 1899 by P. G. Nichols, then general superintendent of the St. J. & G. I., after 25 years' service.

Many Union Pacific officers and employes are members of the Old Time Telegraphers' Association.

Work Is Best

Let me but do my work from day to day,
In field or forest, at the desk or loom,
In roaring market place or tranquil room;
Let me but find it in my heart to say,
When vagrant wishes beckon me astray,
"This is my work; my blessing, not my doom:
Of all who live I am the one by whom
This work can best be done, in the right way."
Then shall I see it not too great nor small
To suit my spirit and to prove my powers;
Then shall I cheerful greet the laboring hours,
And cheerful turn when the long shadows fall
At eventide, to play and laugh and rest,
Because I know for me my work is best.

—Henry Van Dyke.

Patrons and Just Folks

By J. McIlwaine

"Sure, I like my job," said the old street car conductor, "or I shouldn't have stuck to it so long. I did quit once or twice, but I came back. I missed the folks. A conductor, you know, gets fond of his regular crowd. We don't have much time to visit, but we get a lot of the personal touch, at that. Men tell us how fine the youngsters are getting on at school; how well their gardens look. They brag about the new baby, and the young folks often confide their troubles and joys. We don't get rich on our pay, but with anything like average luck, we street car men can raise our families and pay for our homes. I carry a pretty fair sized life insurance policy, besides."

"These folks you carry," was suggested, "how do they average up, day by day?"

"Well, about 90 per cent of them are pleasant, courteous, and easy to get along with. The other ten per cent cause all of our grief. I've learned one thing, you can't tell a gentleman by his dress. The fellow wearing rough clothes and carrying a dinner pail is often far more polite than the chap with a $75 suit. I don't mean that's the rule, but it happens. The same way with motorists. The man in the Pierce Arrow may hog the right of way, and the one in a flivver obey traffic rules to the letter. But on the next trip out, maybe this will be reversed.

"You can't ventilate a car to please all the passengers, some of that ten per cent I told you about are sure to complain. I go down the aisle and open ventilators, trying to fix them so there's no draught. In a few minutes someone is sure to begin to snuffle and complain of the cold, quite likely someone who has just complained about the car being stuffy.

"If passengers would always hand in their transfers flat instead of folded, they'd save a conductor a lot of worry. They ought to have small change. If they haven't it they ought to stand aside until the conductor has collected the other fares, and then hand in their big bills. But the fellow with a ten or twenty always gets on first, and is in a big hurry to get a seat. When men hand a woman up they ought to stand aside and let other women on; they ought to call up to the conductor, 'I'll pay for her.' It would save a lot of checking over and counting noses on the conductor's part.

"It would help a lot, too, if people would give their names in case of accidents, but many of them won't. Usually the company writes asking them what they know. They are seldom called into court, but they seem afraid of giving their names. It helps a lot in fixing the blame if we can get them to tell what they know.

"People leave almost everything on the street cars. Books, lunches, letters, coats, false teeth, milk bottles. One woman even forgot her three-months-old baby! She had laid it on an empty seat and, not being used to bringing it downtown, had got off and left it there. We turned it in to the girls

At the Gare du Nord, Paris, Meaning the Northern Station, the Men Are Cleaning up the Big Engine After a Journey From London.

at the information desk, and before they could report it to the police matron, the frantic mother came for it.

"Queer about women. Many of them otherwise perfectly honest will lie about their children's age to save a nickel. But I get the fare. No child wants his age understated, and when they object the mothers give in; no woman will deliberately teach a child to tell a fib.

"Prohibition has had a good effect. People may say there's as much drinking as ever, or more, but it isn't true among the street car crowd. We used to have drunks to take care of, on evening runs, especially, but in two years I've carried only two intoxicated men, and they could take care of themselves. I used to be forever putting them off the cars, or seeing that they got off at the right station.

"Then there's woman suffrage. I wonder whether it is the reason that men are less polite than they used to be. Maybe it's because so many women are in business nowdays. A man can't give up his seat to all of them so he figures what's the use? Unless a woman is really old or carrying an infant, usually she has to take her chances with the men. The women don't seem to mind though; they're good sports for the most part, independent and able to take care of themselves.

"Interurban runs are different from city runs. We interurban men are in much closer touch with our passengers. If a regular passenger is late, and only a short distance away we wait for him and make up the time. A passenger who gets left will be sore and argue on the next trip that our watches are wrong, something they are never allowed to be.

"We're supposed to be walking information bureaus, and we must be patient. We might like to express our opinion sometimes, but it won't do.

"People have changed some in 25 years. They rush more and take less time for the niceties of life. Young people are bolder and ruder. Still, folks respond to drives for milk for sick babies; homes for disabled soldiers, and the like. They carry hero worship for someone like Lindy, for instance, to a frenzy, which shows they still have hearts and ideals. Young people are still marrying and buying homes and furniture on the installment plan, and telling me about it.

"Fact is, I've seen many a romance sprout right under my nose, young folks going and coming from work. Married couples are just as proud of their babies as their parents and grandparents were, so I guess the world is pretty safe for a while yet."

We cannot always oblige, but we can always speak obligingly.—Voltaire.

It's what you leave undone that undoes you.—Forbes Weekly.

Economic Value of Hose Connectors

By C. O. Bradshaw

Automatic hose connectors for freight and passenger cars is a live subject, and is being seriously considered by many progressive railroad executives. On account of the investment involved for the universal adoption of connectors it is necessary to make a careful analysis of the subject.

During the last five years railroads generally have made an exceptionally fine showing in reducing operating expenses and increasing their efficiency. These results have been accomplished by applying improved methods and modernizing equipment and facilities which in turn have offset, to a certain extent, increased taxes, higher labor and material costs, and the loss of passenger and L. C. L. business to bus and truck lines. The pressure for further economics is still a daily problem.

During the coming years railroad officials will be called upon continuously to scrutinize more carefully the items of expense affecting operating costs. Theremore, the question of universal adoption of a practical connector must receive serious consideration, and the subject at this time seems to be more a question of cooperation between railroad officers and the manufacturers of automatic connectors.

Almost all practical railroad men have felt the need of a practical device for coupling and uncoupling hose automatically; in fact, this is the missing link in economical train operation today, and the most important question to be considered is whether or not a practical connector has been developed, one that is entirely foolproof, practicable, simple of design and low in first cost and maintenance.

After many years of effort and the expenditure of large sums of money, the connector art has been developed to a point where an entirely practical device is available.

The next question submitted by the railroad executives is, what operating economics can be effected by the use of automatic connectors? In answering that question, we may safely accept certain economic facts that have been developed by practical and technical experts in the last few years. The most important economy seems to be the reduction of leaks in train lines and fuel conservation. For example, a committee of supervising air brake representatives from the largest rail lines in the country was called upon to make a careful study of train pipe leakage and fuel economy. The following extracts are quoted from their report:

> This committee, after careful and deliberate study of the air brake situation, announced that the leakage of air in brake pipes and connections under freight cars was responsible for an annual loss of over 6,000,000 tons of coal. With the exception of train line losses incurred in controlling trains on heavy descending grades, it is estimated that 95 per cent of the fuel consumed in compressing air on locomotives is used to make good this brake pipe leakage.
>
> Specific tests have shown that a train pipe leakage of 7 pounds per minute on a 50-car train entails a loss of more than 39 cubic feet of free air per minute, and absorbs 91 per cent of the capacity of one 9½-inch pump or 59 per cent of the capacity of one 11-inch pump. Under conditions that frequently prevail on 50-car trains the brake pipe leakage often amounts to more than double the quantities stated.

In addition to these statements, an authority on air brake matters makes the statement that the saving through the elimination of train pipe leakage is estimated to be many dollars per car per year, an amount approximating the first cost of freight connectors.

Mechanical experts who are familiar with the present day development of automatic connectors estimate that the major portion of the expense incident to train pipe leakage can be eliminated by the use of connectors. Therefore, this item alone would justify the first cost for the universal adoption.

In addition to the points mentioned the following also are deserving of earnest consideration as touching the economic merits of the connector:

Air hose replacements. The air hose being relieved of all mechanical strain, would not become porous and consequently life would be prolonged to at least double its present period without danger of failure.

All brake pipe joints and clamping would cease to experience the heavy and frequent suddenly applied strains that result when hose are pulled apart while under pressure, causing these joints and clamps to become leaky and loose, and often causing the brake pipe to pull out from under the car, angle cock to break off or the crossover pipe to break.

Materially improves action of brakes. The brake pipe leakage being reduced to an almost negligible quantity, eliminating right angle bends in couplings allowing the air to flow freely, a uniform pressure throughout the whole brake pipe can be maintained and such condition automatically will bring about smoother and shorter stops and less time will be required to effect the release and recharge.

In 20 years of development work certain facts have been established and those facts outweigh opinions. Therefore, it is felt that the judgment of railroad officers in considering this important matter must suggest automatic connectors as an investment for, rather than a mortgage against, the future, and when all the facts are considered it is a pertinent question whether the railroads can afford not to adopt this modern method of connecting train pipes, instead of, can they afford to adopt it?

Mr. Bradshaw formerly was general manager of the line now called the Chicago, Milwaukee St. Paul & Pacific R. R.

Honor in Business

There is an honor in business that is the fine gold of it; that reckons with every man justly; that loves light; that regards kindness and fairness more highly than goods or prices or profits. It becomes a man more than his furnishings or his house. It speaks for him in the heart of everyone. His friendships are serene and secure.—Longfellow.

Little Stories About Big Men

William H. Woodin.

SOMETIMES the awakening doesn't come until he is 50, occasionally at 40 or 45, but sooner or later the man who needs a shoe horn with his hat gets a crack between the eyes, metaphorically, that makes him see things differently. Married men aren't nearly so conceited as the singles—not after a few years—and this isn't a knock on W. B. (meaning wedded bliss); it's a boost. They have an advantage over others because they have someone to take the conceit out of them. And that is just what such men need.

The chap who knows he can do a piece of work better than anyone else and does it without any double-page spreads in advance, wins the world's approval and overlooks the envious half-wits. The conceited man, the man so swelled up with self-esteem that he struts sitting down, has few friends, and hears no applause until he fails to deliver.

The story about Rollins, a famous electrician in his day, is as old as Lydia Pinkham, but it illustrates the text for this morning's sermon. In the pioneering days of electricity Rollins did a piece of work for a big concern and sent in a bill for $5,000. After the president had been revived he returned the bill to Rollins with a note saying that doubtless a mistake had been made. Rollins thanked him by return mail for drawing it to his attention and put a figure 2 in front of the 5. When the case came to trial the great attorney, Rufus Choate, examined the electrical engineer. "On what grounds," he demanded severely, "do you base your charge for $25,000?"

"On the grounds," said Rollins, "that I am the greatest electrician in the world."

"My word, Rollins," said a friend afterward, "that sounded dreadful: Your telling Choate you were the greatest electrician in the world."

"I know it," said Rollins, "and it made me feel like a cad, but you must remember I was under oath."

Some men are called conceited who are merely over-dignified. This kind of dignity is on the borderline of the worst type of egotism, but very often it is assumed simply to keep certain people at a distance. There are visitors, you know, who draw a chair up close to yours and get in your lap if you don't discourage them. These are persons you read about in the advertisements whose friends don't tell them things they ought to know.

The really egotistical man doesn't know the world is laughing at him until something happens, as in this Little Story. It is about a railroad man whose job kept him so close to the presidents that his hat became a kind of halo. His entire time was given to public speaking which accounts for his presence one day at the dedication of a famous monument down

south. The United States senator chosen to deliver the big talk missed his train that day, and as no one else in town was suspected of having a speech in his system at all times the railroad man was asked to dedicate the monument. Luckily the public library Mr. Carnegie had sent out had the necessary facts about the historical personage to be honored in imperishable granite so that, quite to the astonishment of everyone except himself, the railroader sat in the seat of the mighty at the head of a procession a mile long. It was pretty hard to talk for 45 minutes and never say a word about the net return, but he made the grade. It was a good speech. Several in the front rows heard it, but the wind took most of it away, which was just as well.

It was important in his job for this railroad man to be quoted. Imagine his delight, therefore, when he saw the evening paper! There, in large type, correctly spelled, too, was his name as the speaker of the day! There it was, top of column, front page! Eagerly, but with the feeling that every word was well-deserved, he read the laudatory account. What pleased his vanity more than anything else, however, was the closing paragraph. "Mr. Whoosit's dedicatory address," the reporter said, "was a scholarly gem of oratory, wonderfully delivered and enthusiastically received. At times the great throng of thousands was hushed as if under a deep spell, and again it broke into prolonged applause. The speech will never be forgotten."

Mr. Whoosit hastened around to the newspaper office the next morning and asked for the writer chap. "A wonderful report," said he. "I want to thank you sincerely."

"That's all right," was the crushing reply. "I wish I might have heard you speak. I couldn't get away from court."

This railroad man must have felt about as did William H. Woodin once upon a time when he, too, had unloaded a speech upon a defenseless assemblage. Mr. Woodin is president of the American Car & Foundry Co., chairman of the board of the American Locomotive Co., and president, director or both in a good many other very important industrial enterprises. He was Bill Woodin in those days—it was about 1897—someone had persuaded him to run for congress, and his first speech was to be made in a little coal mining town in Pennsylvania. The school house, reserved for the great occasion, was packed with miners when the candidate appeared.

"I had rehearsed the speech carefully," said Mr. Woodin, telling the story long afterward. "I put it over, too. At intervals I was interrupted by applause, which grew louder and louder as the speech neared its end. When I sat down there was an ovation that lasted 15 minutes.

" 'I was greatly pleased with myself. I had never dreamed that I was such a wonderful orator. I turned to a newspaper man and said, modestly:

" 'They seemed to like my speech.'

"He grinned at me. 'Don't you know,' said he, 'that only three or four of those guys can speak English?'

"I was astounded. 'Then,' said I, 'how do you account for the applause?'

" 'Oh,' he replied, 'You watch, and you'll see that the one who speaks English is signaling when he thinks the applause is due.'

"I watched the next speaker, and sure enough, it was true. Moreover, the cheer leader didn't seem to understand English very well, for the applause all came in the wrong place.

"Then I realized I had been so busy thinking about myself and my speech that I had never thought about my audience at all.

"That cured me of thinking too much about myself and not watching the other fellow."

Mr. Woodin told another one on himself not long ago while attending a staff luncheon at one of the car foundry plants. This also is about a speech. On the occasion to which his story applied there was present a Russian who knew no English. The Russian expressed through an interpreter who knew but a few words of our language the desire to make a little talk. The interpreter explained that the speaker would use German, which language he spoke fluently, and that Woodin, who has some reputation as a linguist, would translate.

"Now I used to talk a little German," Mr. Woodin explained, "but that was long ago and I have forgotten most of it. But I glanced around the table and saw no one who was in the least likely to know a word about it. So I figured I was quite safe.

"The Russian made a brief talk and I made notes of what I understood, or thought I understood. And when he was finished I rose and translated, telling what I thought he had said, or, when there were gaps, what I thought he ought to have said.

"Just as I was concluding I noticed a man I hadn't seen before. It was Charley Blank, one of the plant officials, whose parents were German and who speaks German fluently.

"When the luncheon was over I went to Charlie and explained. I told him I was rusty on my German but had done what I could.

" 'That's O. K. Mr. Woodin,' said Charlie; 'but I must confess I never before realized the deep meanings sometimes contained in the German language.' "

Mr. Woodin comes from a long line of distinguished industrialists. As his father and his grandfather were iron founders it was quite natural for him to decide that he wanted to be a physician. Life is like that, it seems. But he was talked out of it, as many a father

has talked his boy out of strong ambitions. He could be of more service, he was told, in carrying on the family business, the old traditions of the name, so he left Columbia University and went to work in the big plant.

He found no soft job picked out for him. The first assignment was that of cleaning castings, and then the riotous tasks of a moulder. It was hard work and dirty. It couldn't be done in a white shirt, and gloves were out of style in the shop. Indeed, as he often declares, the job was unpleasant. Sometimes he was on the point of chucking the whole thing and going back to medicine. But he stuck to it, as he has stuck to many an unpleasant job since then, until the day came when he decided that perhaps his father knew best. He had determined the boy ought to learn the business from the ground up, and that was just what happened, as the subsequent record shows.

"My father," said Mr. Woodin one day, "had great foresight as to my education. But the principal lesson I learned was self-control, and this is mighty important. One of the truest axioms has it that that before a man can control others he must learn to control himself. In the army you know, they say you must know how to obey before you can command.

"Life, and particularly business life, offers a course in self-control for whoever is willing to learn it. Nearly every day there comes a moment when a man is tempted to 'fly off the handle' about something. If he grips himself hard, and does not allow the impulse to master him, next time it will be easier. This self discipline breeds poise and certainly people learn to rely upon the man who has his temperament so well in hand that he is equable under all conditions. When a crisis comes, they turn to him for leadership.

"I remember one day I was casting plates. I had prepared a number of molds and poured the metal. Then I began to take out my plates. One of the molds, instead of the plate I expected to see, disgorged an irregular lump of glowing metal. I couldn't understand what it was, nor how it happened to get that way. I took a bar and knocked the sand off it, and, to my surprise, there was disclosed a bull frog of red-hot iron. As I stared at it in astonishment, a roar of laughter went up from the other workmen. One of the old stock jokes had been played on me when someone had substituted a bull-frog mold for my mold without my knowing it. My bewilderment, when I saw it, pleased them a lot.

"Another time I got ready to mold a car wheel. I had prepared the mold and was trying to put the core in it. The core of baked sand had three little lugs projecting from its face which were intended to fit into corresponding indentations left in the mold by the pattern.

"Two or three times I tried to fit them together, but every time the sand around the indentations broke and crumbled, so that I had to prepare it all over again. I was an experienced moulder by this time, and my own awkwardness, which I thought was at the bottom of the trouble, surprised and provoked me. Again and again I tried, the sweat pouring off me in the heated air of the moulding room. The result was the same every time.

"Finally I became conscious of that peculiar silence which comes when all the men stop work to watch something. Like a flash I realized that I was the victim of a trick and that my hours of work had gone for nothing. I looked up. The men were looking at me and grinning. For a second I was angry, then I controlled myself.

"I grinned back, and reached for a pair of calipers to measure the work.

" 'All right, boys, it's on me', I said.

"At that the men broke into a roar of laughter and one of them brought me the pattern which had been concealed. Then I finished the wheel and cast it, with no more trouble.

"One of the old timers, a man who had started with my grandfather, came to me later on and said:

" 'You'll do, Billy. We haven't much use for a man who can't stand the gaff.'

"Years later when I was myself in charge of that plant I was rewarded for my self-control on that and other occasions."

Mr. Woodin was called to his office one day—it was on the second floor and had a balcony—and there found 800 of the foundry employes, represented by one whom they had chosen spokesman.

"Billy," said the leader, affably, "the cost of living is still rising. We've been reading in the paper that you're getting higher prices for your product. We think we ought to have a raise, and while we were waiting for the next heat, we thought we'd ask you about it."

"Billy" investigated the situation, promised the men ten per cent increase. About three weeks afterward, going through the foundry one day he was stopped by one of the men.

"Say, Billy, "he said, "how about a little raise?"

"Raise, why, I just gave you one three weeks ago," Mr. Woodin replied.

"Well," said the man, "we didn't get it."

A mistake had happened somewhere in the timekeeping department. Later, someone asked one of the men why no one had complained when the promised raise failed to arrive. "Oh," he replied, "Billy's a good boy. We didn't want to embarrass him. You see he used to work here."

A story of another kind is told showing how keen a student he is of human nature. It happened while he was assistant manager of the Berwick branch of the Ameri-

can Car & Foundry Co. It seemed necessary at times for him to sell equipment. On one such attempt he learned that the purchasing agent for the railroad had gone to a dentist's office for a few light repairs. He might wait, the clerk told Mr. Woodin. "No, thank you," said the salesman, "I don't care to see a man after he has come from his dentist."

When he returned ten days later the purchasing agent was the personification of cordiality which may seem like stretching it a bit, but writers must have some liberty. Not only was he pleasant. He smiled. "So," he chuckled, "you're the chap who wouldn't wait until I came from the dentist."

"And," Mr. Woodin smiles, "I booked a good size order from him."

It's the Little Things That Count

John M. Davis, president of the Lackawanna, believes in small economies. "When a man buys a carpet or a piece of furniture," said he recently, "he has it taken to his house on approval to see how it fits into the general scheme of things, pulls up the shades the better to see it, asks the price, barters about it, and then may or may not purchase it. The next day, however, he'll bring home five pounds of butter without ever inquiring about the cost, and he may be able to get the same butter next door five cents a pound less. Now on this railroad, for instance, we were wasting a lot of money on expensive letter heads. It didn't seem like a great deal but results of our first year's campaign showed that we saved $96,000. Yes, sir, it's the little things that mount up."

And Lots of It

Charles M. Schwab, chairman of the board of the Bethlehem Steel Co., knows a good deal about hard work. He did plenty of it in the years of his young manhood, and now, with millions at his command, he works still harder. "All work and no play," said he, not long ago, "makes Jack, and lots of it."

"But I wouldn't change a thing if I had life to live over again," he continued. "I am content with life as I have lived it." Money, he said, was not the thing that gave him happiness. "Peace of soul and real joy," he urged, "is to have the good wishes of your fellow citizens."

Mr. Schwab is not the only rich man who has attested to this truth. The late Arthur Nash of Cincinnati was another good example. They called him "Golden Rule Nash." He handed over to the workers in his clothing establishment $600,000 in stock dividends, or half the profits up to that date. In less than a decade the business increased from $132,000 in 1919 to nearly $14,000,000 in 1927, the capital from $60,000 to $3,000,000 and the number of workers from 29 to over 6000. He was a great believer in organized labor. No wonder he was a happy man. He proved that business can be made compatible with the ethics of the Golden Rule.

The Unwise Feeder

We live in a land of luncheon clubs. No other country on earth has so many of them. Rotary, Kiwanis, Lions, Optimists, Pessimists, lodges of one kind or another with evening dinners, business conferences—some about business and some about golf or poker—and, while many of us may not realize it, they make us pay a deadly toll.

The principal reason for this lies in the fact that few men use common sense about eating. Men who earn their livelihood by speaking in public rarely eat anything at a public function, and some of them couldn't speak afterward if they did, but the average man gobbles everything in sight. Ordinarily, the food served by luncheon clubs is a criminal offense as bad, almost, as the things dished up in the average country hotel. Far more atrocious is the stuff you get at church suppers.

No one, apparently, seems to realize that all this strain on the national stomach has a very distinct influence in divorce statistics. If you have given no careful thought to what to eat and what to let alone you ought to stay away from club feeds of all kinds. Your home life will be happier, and your children will no longer refer to you as "that man."

Perhaps no person in history ever attended so many public dinners or made so many after-dinner speeches as the late Chauncey M. Depew. On this subject, therefore, he may be regarded as an authority, and his pronouncements are worth preserving. Of food and drink, which precede oratory, he once said:

"I have never experimented with strange foods. My health and longevity are due, more than anything else, to the fact that I have been very careful what got inside of me. I have seen a flow of champagne suggestive of Niagara, but I have never been submerged. One rule I have followed: I pick out of each bill of fare what I would have eaten if I had stayed at home. At a very large dinner I do not take the oysters. I merely touch the soup. I skip the fish. I skip all dishes upon which the chef has exhausted his art. I eat the roast, if it is lamb or a fowl, and skip it if it is beef. If there is terrapin, I take that because it is very digestible, and I take the game. I do not smoke and I never drink anything but champagne, and very little of that. The next day everything with me, head and vitality, are as usual. There never was a man yet whom drink did not dull or deaden. Most of the great speakers I have known never touch anything at dinner. They have told me that their mental processes would not work until at least five hours after a meal. I never was troubled that way."

Queer Happenings in October

—Herbert Photo.

A Queer Thing This Was, in These Speedy Days; a Race on the Ohio River for the Title of Queen. From Cincinnati to New Richmond, 20 Miles, and the Chris Green Won in Two Hours and 25 Minutes. These Boats Take Much Freight Too From the Railroads.

FAT persons do some really astounding things. At New Albany, Ind., the other day, Marie Merrill, weighing something more than 300 pounds, fainted on a street car. This wouldn't have been so very serious had she not become wedged between two seats when she fell. Traffic was tied up until the fire department apparatus arrived—why do they always call firemen?—and by this time the motorman, the conductor and the passengers had unscrewed one seat and released the bulky passenger.

In Los Angeles, the same week, a fat man was sued by a woman who declared that while she and others were standing in a safety zone, waiting for a street car, the fat man sprang upon the car steps when they came opposite him, and being unable to get into the car, mowed down all the waiting traffic as he passed. The crowd fell on top of the complainant and mashed her against a traffic button, injuring her so that she had to be taken to a hospital. The fat man got into the car and filled a seat or two, wholly unaware that anything had happened until the police arrived.

An Air Bandit Jailed

Clarence Rene Frechette, so-called "air bandit," convicted of attacking Harry Anderson, airplane pilot, with a hammer while they were flying 2000 feet in the air above Pontiac, Mich., several months ago, was sentenced to serve six to ten years in prison. The minimum term was recommended.

The attack on Anderson caused a forced landing in which his plane was wrecked and both men were injured.

Well, of All Things!

This yarn came from West Liberty, Iowa—not West Branch. A mail plane was forced down by heavy rain which made it impossible for the pilot to see the lights of Iowa City. Being in Iowa the plane landed in deep mud. An automobile was sent out to the res-

The Telegraph Section of the A. R. A. Left Its Recent Convention in a Body to Visit the Big Trees.

cue. The automobile went still deeper into the valuable soil. Then, reverting to the original transportation, or pretty near it, the pilot and the motorist sent for horses and they first pulled the plane to solid ground and then rescued the motor car. This, the pilot said, was the real Farm Relief.

The Longest Train?

What is thought to be the longest train with the greatest number of cars ever operated by any railroad with one locomotive was run west out of Victoria, Va., on the Virginian for Roanoke on July 16. The train had 201 cars, four of which were loaded, 4573 tons. The train proceeded to Roanoke (123 miles) without the assistance of a pusher engine in seven hours and 35 minutes, including all delays, passing over the Stone Mountain range of the Blue Ridge Mountains, where there is a grade of 0.6 per cent. The train was 8482 feet long, or more than a mile and a half. It was delayed 32 minutes en route meeting and allowing other trains to pass, with practically no delay to other trains. The train consisted of 189 empty coal cars, 8 empty box cars, 2 cars of gasoline, one car of steel and one car of asphalt.

The type of locomotive used is a 2-10-10-2 Mallet which is handling eastbound in loads from Roanoke to Victoria trains of 14,000 tons, averaging from 125 to 160 cars, and making the run in about 12 hours.

Railroad Standing

Every railroad is measured by the character of its employes, as reflected in the service the railroad provides. Upon all the employes to some extent, but more especially upon those who come in direct contact with the public, depends the reputation of the railroad. It is no exaggeration to say that the employes stand for the railroad in the public mind.—L. A. Downs.

Monkey Business

The United Railways of Baltimore has been sued for $30,000 because a boy is alleged to have been bitten by a monkey. George Spangler, Jr., who claims to have been the victim, has filed suit through his father for $20,000 and the father has asked $10,000. It is charged that the boy was bitten by a monkey at Gwynn Oak Park, which is operated by the United.

One Good Turn Deserves Another

Twice in one night, with different drivers at the wheel, the automobile of H. F. Blanchard, near Modesto, Cal., was hit by freight trains, and on each occasion by a different train.

Miss Helen Blanchard, 20, was at the wheel when the sedan was first hit by a Southern Pacific train at the B street crossing.

Four hours later the machine, with Overton Blanchard, 18, Miss Blanchard's brother, driving, was struck by a Tidewater Southern train at the College avenue crossing.

Legal Dept. Notice

Because an automobile becomes "stalled" on a railroad track the driver of such a car is not necessarily to be held responsible when such a car is struck by an approaching train it was ruled by the Georgia court of appeals in the case of Sarman against the Seaboard Air Line. It was held that an engineer of a train is obligated to blow his whistle on approaching a crossing under all circumstances. The decision was rendered in a damage suit that has been pending in the courts for five years. A verdict for $5,000 in favor of the plaintiff was upheld.

The Stables, Where Are They?

Twenty years ago there were five prosperous livery stables in Oroville, Butte County, Cal. Now there isn't one. John C. Eicher, proprietor of the Eicher Corral, an Oroville institution for 60 years, has closed his office and taken down the left hind shoe of Hobo, famous California race horse. The shoe hung over Eicher's desk more than 20 years.

The Sands of Time

Time is the one thing that can never be retrieved. One may lose and regain a friend; one may lose and regain money; opportunity once spurned may come again; but the hours that are lost in idleness can never be brought back to be used in gainful pursuits. Most careers are made or marred in the hours after supper.

Training for Railway Work in Australia

The Flinders Street Station Building, Melbourne. The Institute Occupies the Rooms Above the Black Line.

By W. A. Webb

Chief Commissioner,
Government Railways, Adelaide.

THE education of the employes of these various state railways of Australia was haphazard for a long period, the ambition and energy of the individual alone stirring him to improve his knowledge of railway matters by constant observation, by suitable reading, and by securing the sympathy of older and more experienced employes to impart instruction in the various subjects incidental to the accounting, engineering and traffic requirements of railway working. For the higher and technical posts, importations from Great Britain invariably were obtained. As mileage expanded and business increased in the course of years, the authorities began to recognize the need for systematic training on a sound basis. New South Wales was the first state to awaken to its responsibilities and establish a Railway Institute, whose primary object was the intellectual improvement of the railway staff in order to fit the men for promotion to the various grades; and, secondarily, to foster their social and physical well-being. A suitable building properly equipped was officially opened in March, 1891, by the minister for railways, W. McMillan, in the presence of a large and representative gathering, including the premier, Sir Henry Parkes; the chief railways commissioner, E. M. G. Eddy, and other heads of the railway department.

The sister states which followed this excellent sample were Western Australia in 1906, Victoria in 1910, and South Australia in 1925. Admiral Lord Fisher remarked that "Education is the eternal debt maturity owes to youth". The wiser heads controlling the destinies of so many of the younger generation in the employ of the government are now admirably fulfilling their obligations in that direction. The Melbourne and Sydney Institutes are most progressive and performing admirable work, their accommodation and equipment being extensive, and their educational curriculi embracing a wide area of primary and technical subjects, so that the less powerful states are largely modelling their activities on their bases.

In Victoria, a Railways Technical College, as an adjunct to the institute, has been established at the Newport Locomotive and Car Workshops. The apprentices to the various trades are required to attend the classes for technical instruction during the first three years of their apprenticeship. The lecturers are lent by the director of state education, their salaries being borne by the railways commissioner. The three apprentices, who by examination secure the highest places at the termination of the full course are eligible for scholarships for the diploma course in electrical or mechanical engineering at the Melbourne Technical School. If they secure their diplomas, they are appointed engineering assistants in the rail-

way service, and are eligible for advancement to higher professional positions. The curriculum for their three-year course embraces:

1st year—Mathematics.
Arithmetic and Mensuration.
Geometrical development.
Projection.
Elementary science.
2nd year—Mathematics.
Engineering drawing.
Applied mathematics.
3rd year—Algebra.
Engineering drawing.
Solid geometry.
Mechanics and steam.
Electricity.

As a further step in technical and scientific education the Melbourne University Council arranged to admit every year to the course for the degree of bachelor of mechanical or electrical engineering without payment of fees for lectures or examinations one apprentice to be nominated by the railways commissioner. The railway department also assists university students in the engineering course by granting facilities to 30 every year to obtain in the railway workshops practical experience during the long vacations as required by the regulation.

In New South Wales a workshop has been well equipped at the institute under a competent foreman, and apprentices are required to attend full time daily for one month in the year. The course is coordinated with the training which the apprentice receives at night at the Sydney Technical School as part of his apprenticeship. In South Australia the railway department, at its own expense, sends selected apprentices to the government School of Mines and Industries for higher education.

Another valuable instance of cooperative education is an arrangement made by the New South Wales Railways Institute for the director of tutorial classes at the Sydney University to conduct three classes in railway economics, transport economics and business management in order that members of the institute wishing to qualify for higher positions might extend their knowledge. In this case a special fee of 5/— is demanded. The lectures are attended by many senior officers of the administrative staff of the railway department.

Each Australian state experiences considerable difficulty in reaching isolated out-back districts carrying a sparse and scattered population. (Generally speaking, he was a neglected person, though not intentionally so). The means for improvement seemed the sole prerogative of the railroad men in populous centers. The adoption of the correspondence course system of education has completely eliminated the disadvantages under which the countryman formerly labored from an educational standpoint, and the railway authorities eagerly introduced the system, thus reaching the employe even in the most distant parts. Subjects dealt with by this means from the main institutes in the capital cities are:

Engine working.
Westinghouse brake.
Permanent way construction and maintenance.
Shorthand.
Safe working.
Station management.
Station accounts.

Another method of reaching the employe is the traveling lec-

Recreation Rooms in the Employes' Institute, Flinders Street Station, Melbourne.

The Yards at Melbourne, Australia. Not a Locomotive in Sight. The System Is Completely Electrified.

turer and his special car, equipped with the necessary models, charts and furniture. As a rule, two such cars are built, one for locomotive and Westinghouse brake instruction, the other for block working, signalling, interlocking and other subjects incidental to safe working. Results with the correspondence course and traveling instruction car have been eminently satisfactory, and added in no small degree to the knowledge and general efficiency of the country staff.

The most effective scheme for educating youthful entrants into the railway service is in operation in Victoria. Briefly this is as follows:

Schools of instruction are established at the main institute at Melbourne and at populous country centers, such as Ballarat, Bendigo, Geelong, etc.

All new appointees as junior porters or junior clerks must attend a school of instruction for a period varying from four to six weeks.

While attending these schools, which occupy from 9 a.m. till 5 p.m. daily, the boys are paid the same wages and away-from-home expenses as if actually employed at their home station.

The subjects taught are:

Rules, regulations and by-laws.

Personal appearance and conduct toward public.

Value of ready and cheerful obedience.

Safety first.

Geography of railway system.

Organization of the system.

Tickets, types and availability, and duties connected therewith.

Receipt and delivery of goods and parcels.

Cleaning premises, equipment, etc.

Posting time tables, placards on station notice boards.

Elementary instruction in signalling and safe working.

Junior clerks are in addition given more advanced instruction in:

Booking and accounting in passenger traffic.

Invoicing and accounting in parcels traffic and calculation of rates.

Handling correspondence and preparing returns.

Telegraphy.

At the termination of the school, the students undergo examination, and if they fail in any subject further instruction is given. Should their case prove hopeless, they are not employed.

In all the Australian states great importance is attached by the railway authorities to the necessity for a comprehensive circulating and reference library, and suitable reading rooms, as a means of broadening the general knowledge of the staff in scientific, technical and fictional matters. Naturally this branch of institute activities is extremely popular, and as books are transported free by rail between the institute rooms and the subscribing member, the rural dweller is on an equality with his usually more fortunate fellow employe in the big cities. In the Sydney and Melbourne Railway Institutes, there are 100,000 and 70,000 volumes, respectively. It can safely be said the railroad employes in the various states are thoroughly cared for by libraries, well maintained and stocked with up-to-date literature of all kinds to suit all tastes.

The premier railway systems of the world seem unable to resist the temptation of publishing a magazine, and the state railways of Australia are no exception to the universal practice. Unquestionably these railway magazines serve a useful purpose. They give scope for publicity and propaganda, and usually contain articles and information covering a wide field, eagerly welcomed by the staff, and as the columns are not confined to railways alone, but include humor, news for the home circle, and social matters so as to interest every-

Institute Gymnasium, Flinders Street Station.

one, their discontinuance would cause keen disappointment among the employes and their families.

Social activities are not overlooked by institute authorities. Indoor and outdoor games of all descriptions are fostered. It is of course necessary to study the physical development of the staff, and the aim is to bring both the mind and body into perfect condition and harmony. Gymnastics, boxing, wrestling, dancing, music, the drama, debating, wireless, are also all warmly encouraged and classes established and assisted by the institutes. A general reference to these matters is all that is necessary as their practice and methods are much the same the world over. They are essential in the bodily development of men and women, and no welfare scheme can afford to ignore their importance and confine its attention to the mind only. We consider this means of education to be of primary importance; it is a form of instruction so easily assimilated. To give an idea of the ground covered, the lectures this season include:

By motor car across Australia.
Australian art, science and literature.
Development and use of locomotive stoker.
The character of Brutus.
History of the cooperative movement.
Wireless wonders.
The land we live in.
To the South Pole and back.
The natives of N. W. Australia.
Automotive power.
Automatic signalling in U.S.A.

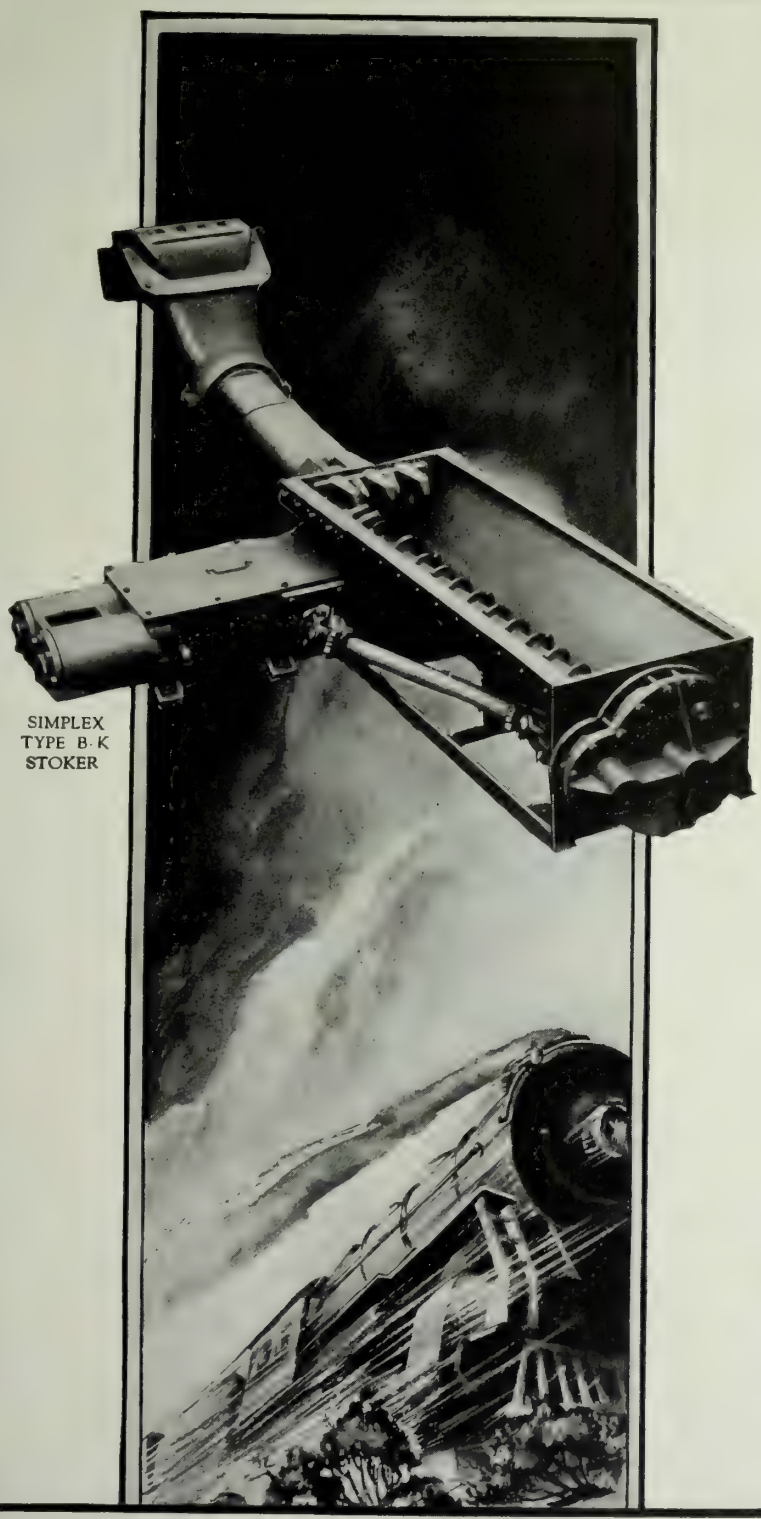
The bioscope is utilized in all possible cases to illustrate the lectures, and every advantage is taken when having a picture night to include travelogues and industrial films. Some of the states have experimented in filming railway operations with considerable success, and these have proved highly valuable as an educative medium.

An excellent tribute to the worth of a well established railway institute recently occurred in New South Wales. I cannot do better than quote from the annual report the following paragraph:

Owing to a shortage of journeymen bricklayers for railway works, the railways commissioners approved the establishing of a class in bricklaying. During the year 40 apprentices from 19 to 20 years of age were selected and trained. The training comprised intensive practical work in laying bricks supplemented by lectures in theory, trades drawing and trades calculations. The period of intensive training was of 12 weeks' duration, after which the boys were placed on various railway works, and arrangements made for them to continue their studies in trades calculations, and trades drawing on two evenings per week for a period of 18 months.

Another example! In 1918 the same state recognized the need of a special effort in the higher training of officers in technical and practical railway management in order to fit them for the efficient conduct of stations and the higher administrative positions. A committee was appointed to make a selection of suitable officers, 150 candidates, mainly night officers and junior stationmasters under 40 years of age, sat for entrance examination, held under the auspices of the institute. Twenty were finally selected after exhaustive written and personal tests, and these began the special course, all being brought to the Sydney Institute for the purpose. They attended the school daily for full time for 12 months. Lectures were delivered by senior officers on such railway subjects as freight and fares, transportation, signaling, accounts, etc., while visits were made to depots throughout the state to gain local knowledge of traffic conditions. Part of the time was devoted to general educational matters, debates, writing and criticising reports and preparing statements. The students were paid their ordinary salary and when the period of training expired, resumed their normal positions, but are given special consideration for promotion as opportunity occurs. The scheme was so successful that a repetition was decided upon the following year with a new group of young officers.

The standing want is never for more skill, but for newer, fresher power.—John Burroughs.



SIMPLEX TYPE B-K STOKER

TON MILES PER HOUR

THE whole question of train operation is expressed in ton miles per hour.

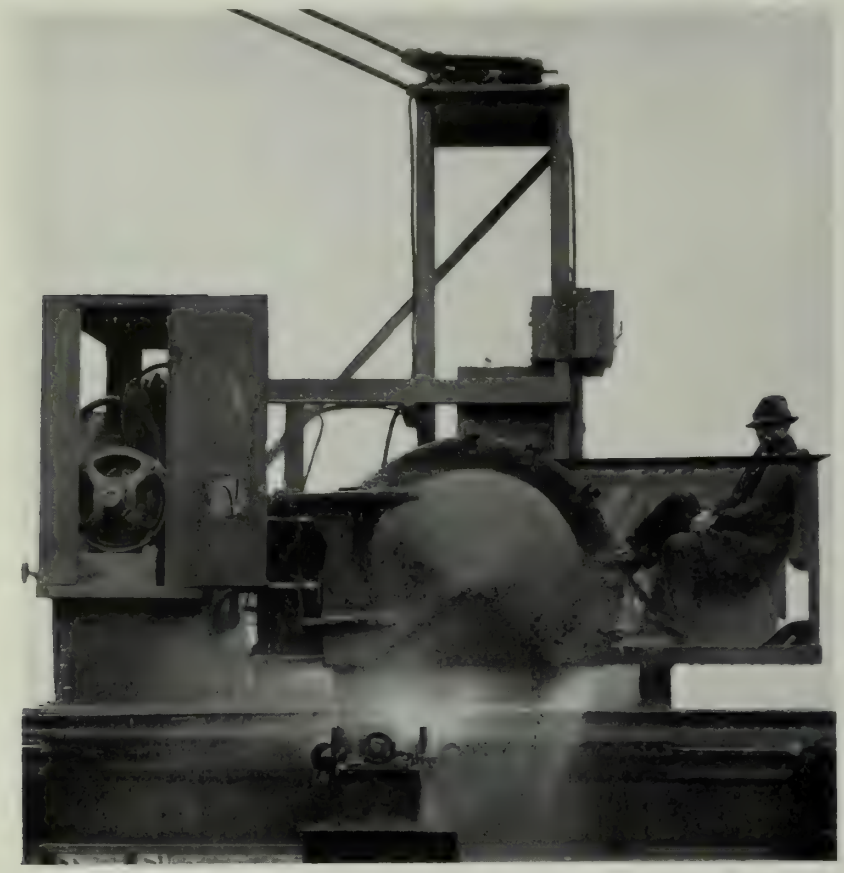
On one railroad the application of stokers to engines that had been hand fired for five years, raised the speed—the tonnage remaining the same—from 10 to 14.4 miles per hour. On another road, the speed remaining the same, the tonnage was increased 1000 tons per train.

This proves that stoker firing is an operating question. Are you getting out of your engines all that is in them, or only what is in the fireman?

SIMPLEX TYPE B STOKER

THE STANDARD STOKER COMPANY, Inc.

New York Chicago Erie Pittsburgh



A New and Money-Saving Use for Friction Saws Developed by Ryerson Engineers in New York.

How a Saw Saved Time and Money

A new and interesting application of the friction saw was developed by engineers for Joseph T. Ryerson & Son, Inc., and solved a special cutting difficulty, a few days ago, for the Interborough Rapid Transit Co. in New York. The company had been making guard rail by stripping a part of the base from discarded rail. Cutting off this strip the entire length of the standard rail was not being accomplished very satisfactorily by the shearing and burning methods in use. The friction saw was considered and has proved satisfactory. This equipment uses the regular high speed friction method of cutting. The large 56-inch special steel blade revolves at a peripheral speed of nearly five miles a minute. The ¼-inch blade eats its way through the rail section, cutting from 4½ to 6¼ feet a minute (depending upon the speed in the feed motor) and makes a good clean cut through the entire length of the rail in five to seven minutes.

The machine, as may be seen by the illustration, has an arc welded structural frame and runway upon which the carriage travels. The carriage, also arc-welded, carries the 100 h.p. friction saw motor and blade, as well as the 3 h.p. motor and reduction unit for propelling the carriage back and forth on the runway. A 70-gallon pump driven by a 7½ h.p. motor supplies water at 150 pounds pressure for cooling the blade. As the machine moves back and forth on the runway, the pump picks up water from a trough alongside the frame. The water resulting from the spray at the saw blade is collected by a concrete installation, and returned to the trough through a system of baffle plates.

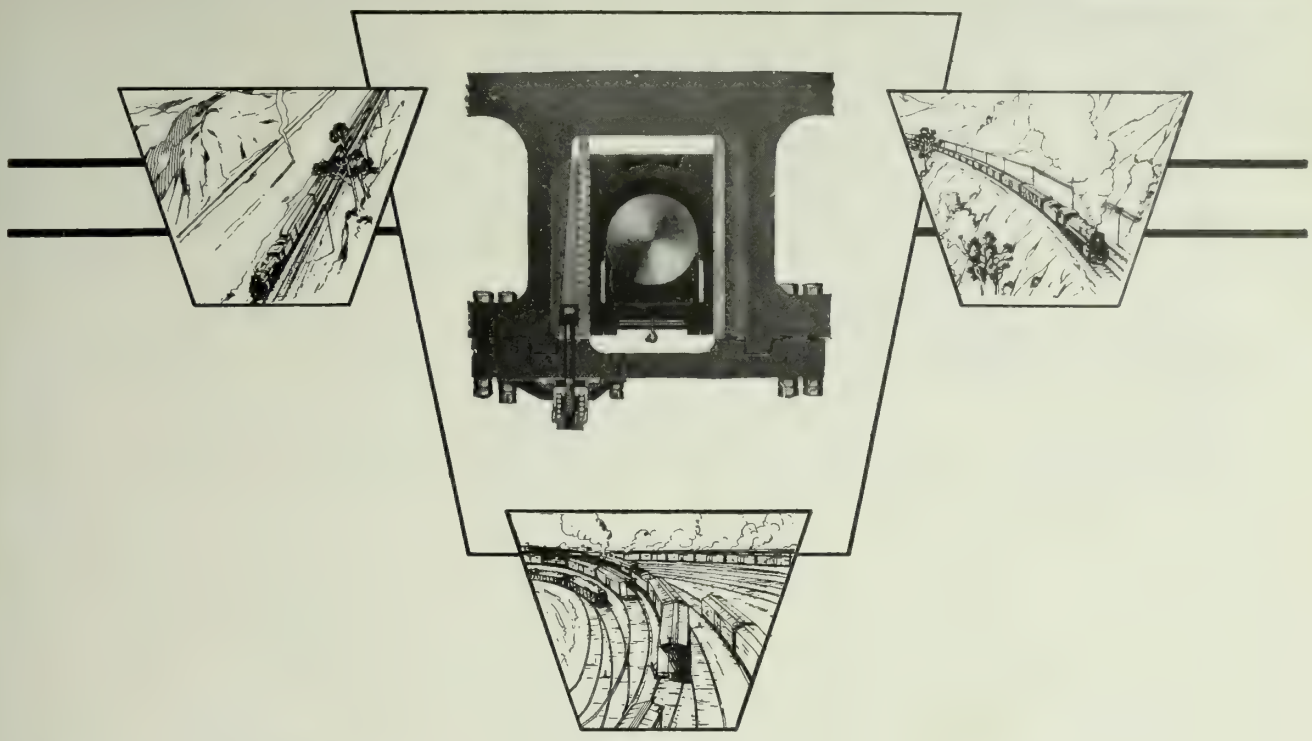
The operating power, direct current varying from 550 to 650 volts, is taken from two overhead trolley wires through standard street car trolley poles. Two trolley poles are used so that the machine itself is not used as a return for the motor current. The advantages of this arrangement are that the motor bearings and other movable parts of the machine are not required to carry this excessive current.

This arrangement also provides a precaution against accidents to the operators. The machine itself, of course, is grounded, but a separate return wire from the motor carries the current back to the overhead trolley, and all parts of the machine are therefore out of the electric circuit. The design of all these motors is special, and they must operate satisfactorily over a wide voltage variation. This fluctuation in voltage supply is due to the fact that the power supply of the railway company fluctuates with the load imposed on the circuit.

Five individual air clamps hold the rails which are to be cut. These clamps are so arranged that rails can be pulled down into them from skids without the assistance of overhead crane equipment of any sort. Rollers are provided on the skids so that the rail can be moved forward or backward after the cut to remove it from the clamps. The clamps are powerful enough to straighten the rail during the time of cutting, thus removing the camber ordinarily found in most used rails. The operator rides along on the carriage when he can watch the work closely. All controls are conveniently placed within easy reach.

She's An Old Time Agent

Miss Minnie H. Smith, station agent at Zumbro Falls, Minn., for 47 years, is looking forward to the fiftieth anniversary of her start in the railroad service, November 28.



Long Runs Demand Easy Riding Engines

The use of "Lubrite" in Franklin Wedges makes an engine ride easily the entire distance

AN engine may be thoroughly lubricated before it starts out on a long run. But in spite of the "oiling-around" of the engineer, dry spots are likely to develop on shoes or wedges before the terminal is reached.

This means a hard-riding engine and consequent wear and tear on machinery.

By using "Lubrite," the self-lubricating metal, for all rubbing surfaces, Franklin Automatic Adjustable Wedges are constantly lubricated no matter how long they run.

No oil is necessary and the resultant economies return the slight additional cost many times in a year.

"Lubrite" shoes and wedges can be applied to existing engines equipped with Franklin Wedges. Try them.

FRANKLIN

RAILWAY SUPPLY COMPANY, INC.

The Locomotive Booster Capitalizes Idle Weight and Spare Steam

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO MONTREAL

The Fine New Passenger Station of the International-Great Northern Ry., at San Antonio, Texas.

Here's Another Viewpoint

Federal legislative regulation of motor bus transportation is not only desirable but is rapidly becoming an absolute necessity, in the opinion of the group of railway executives and members of the automobile fraternity who gathered at the Book-Cadillac Hotel in Detroit, October 24, 25 and 26 for the three-day conference of the Motor Transport Division of the American Railway Association.

Motor bus transportation as it is today organized is not at all satisfactory in its operation, the speakers believed. Another point essential to the proper development of bus transportation is a closer co-operation between the automotive and railway industries so that the joint problems concerning the new development in railroading may be ironed out.

A. P. Russell, vice president of the New York, New Haven & Hartford, president of the division, presided. S. A. Markel, chairman of the motor bus division of the American Automobile Association, one of the principal speakers, said that the sentiment of his association is in favor of immediate legislative action of a regulatory nature to cure the ills of motor bus transportation. R. N. Van Doren, vice president and general counsel of the Chicago & North Western, as representative of the railroad group, announced the agreement of the railway interests with these conclusions.

The necessity for closer co-operation between the industries was stressed by F. C. Horner, assistant to the president of the General Motors Corpn. Coker F. Clarkson, general manager of the Society of Automotive Engineers and G. C. Woodruff, assistant freight traffic manager of the New York Central, also addressed the gathering. The next meeting of the motor transport division of the American Railway Association will be held in St. Louis in February.

For the Public Benefit

Perhaps nothing would do so much for aviation in America as to place behind it the great financial resources of the railroads and their land and other equipment for the accommodation of the public. —St. Louis Globe Democrat.

Honesty Is Rewarded

Mrs. Lillian Curran, matron at the union station of the New York, New Haven & Hartford Railroad at Providence, R. I., whose husband has been out of work for more than a year, received, Sept. 10, a reward of $700 for finding and reporting rings with an estimated value of $15,000.

The rings were left on a washstand at the station by a woman reported to be prominent in Newport and New York society. Her identity is kept secret by railroad officials.

Freight Accounting

Electric railways in Central Electric Railway Association territory recently arranged for an interchange of freight with the steam railroads in the Southern Freight Association territory. Freight can now be billed through from points in eastern Pennsylvania, Ohio, Indiana, Michigan, Illinois and Kentucky to any point south of the Ohio and east of the Mississippi River served by a steam railroad. This connection places the electric railways in a much better position than heretofore.

The accounting in connection with this interchange of business is governed by the Railway Accounting Officers Association rules, which have been adopted by the Central Electric Railway Accountants' Association in so far as they are applicable to electric railway freight accounting methods. The adoption of the R.A.O.A. rules is regarded as one of the outstanding achievements of the C.E.R.A.A. during the year.

Metal Affected the Compass

J. O. Webster, a pilot for the National Air Transport Co., flying with mail between New Brunswick, N. J., and Cleveland, O., one day last week, suddenly found himself far off his course. In making a forced landing near Branford, Conn., he crashed, wrecking his plane but escaping without serious injury. Investigation developed the fact that Webster's compass had been affected by metal contained in a mail package, so that without knowing it he had flown in the wrong direction.

All through life, be sure you put your feet in the right place, and then stand firm.—Abraham Lincoln.

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THE CHICAGO, ROCK ISLAND & PACIFIC RY. CO.

NEW YORK PHILADELPHIA NEWARK CHICAGO
ATLANTA LOS ANGELES
BUENOS AIRES RIO DE JANEIRO

The News of the Month

What's Been Going on in Transportation, Railroads, Automotive, Supply, Aviation

THE BOARD of directors of the Pennsylvania Railroad has authorized the electrification of the entire road train service, freight and passenger, between New York and Wilmington, Del. This authority covers a part of a plan which includes also electrification of the grades between the Susquehanna, Schuylkill and Delaware River Valleys and the company's eastern terminals.

The project as now announced covers the passenger and freight service on 325 miles of line and 1300 miles of track beginning at Hell Gate Bridge, New York, where connection is made with New England, and extending west and south to Wilmington, west from Philadelphia on the main line in the direction of Harrisburg as far as Atglen, Pa., and the low grade freight lines which join at Columbia, Pa., and connect New York, Philadelphia and Wilmington with the West.

This electrification will far exceed in magnitude and in importance that of any other railroad in the world, in miles of track to be electrified, in volume and density of passenger and freight business handled, in size and amount of equipment required, in the number of trains affected, and in terminal operations involved. The project will be undertaken progressively in sections and extend over a period of years.

It is estimated the cost of this electrification will be approximately $100,000,000 to be spent during the next seven or eight years at the rate of about $15,000,000 a year; 60 per cent of the total being for catenary, transmission line and sub-station construction, and 40 per cent for rolling stock. This will be a normal percentage of Pennsylvania Railroad improvement expenditures, which have been averaging $70,000,000 a year, a reasonable part of which has always been provided out of surplus earnings. These proposed capital expenditures for electrification will make unnecessary certain other capital expenditures on this section of the railroad which would have to be made unless electrification is carried out.

Arrangements have been made by the Pennsylvania to purchase power from the Public Service Corpn. of New Jersey and the Philadelphia Electric Co.

At present the Pennsylvania is electrified between the Sunnyside yards at Long Island City and Newark, and from Philadelphia to Wilmington. The latter section has just been completed.

According to the plan announced by General Atterbury, the first step will be electrification of the road between Philadelphia and Trenton, which will be completed about 1930. The Newark to New Brunswick section will be put through in a year or a year and a half, after which the Trenton New Brunswick section will be completed. General Atterbury said:

"We intend to use the alternating current single phase system of electric traction, similar to that now in use in our Philadelphia suburban service, because we believe it the best adapted for heavy traction trunk line service. Our engineers studied this system abroad a number of years ago and in anticipation of the future we have been working on its development ever since. It is now used extensively in Germany, Switzerland and Sweden, and in this country on the New Haven, Norfolk & Western, and Virginian Railways.

"In suburban service we will use multiple unit cars similar to those in the subways of New York and Philadelphia and those at present in use on our Philadelphia suburban lines, because they are more desirable from the standpoint of rapid transit on runs where frequent stops must be made. The through freight and passenger service will be handled by electric locomotives because they handle that kind of service best.

"With the assistance of the electric companies we have developed three types of electric locomotives which when used singly or in multiples as required will provide any power demanded by size, weight of train, or speed. They are so designed as to permit the maximum interchangeability of parts, the minimum cost of maintenance, and the simplest and most direct methods of manufacture.

"By the method of operation proposed we expect eventually to reduce the number of freight trains 50 per cent for a given car movement and increase the speed to any reasonable extent required. This of itself provides for a 100 per cent increase in capacity in so far as freight movement is concerned.

"In the case of passenger trains, we expect to eliminate all double heading and most, if not all, of the second sections of trains and avoid the possibility of rough handling due to limited starting capacity, all of which make for greater comfort, better service and increased capacity of the line.

"The rest of the details are relatively minor and, while they have been fully worked out, are more or less subject to change dependent on the developments of the art between now and the time each expenditure is made."

Kansas City Southern Train Service

Vice President J. F. Holden of the Kansas City Southern says the widely printed report that his line had taken off all passenger trains between Kansas City and Pittsburg, Kan., is incorrect. "What we did," says Mr. Holden, "was to eliminate one of our local trains and establish a fast passenger schedule so as to get at least a part of the through travel which had been using other routes to southern points. While this fast train makes no stops between Kansas City and Pittsburg, Kan., we believe that territory, in view of the very limited local travel at the time, is still served adequately by trains three and four, daily, in each direction, and stopping at all stations."

Great Northern Opens the Cascade Line

The Great Northern has started operations over its new 17½-mile Chumstick line in the Cascade Mountains, replacing the old line along the Wenatchee River and Tumwater Canyon, which will be torn up immediately.

The new line, which cost about $5,000,000, has 46 fewer curves than the old line, has no curve greater than three degrees, eliminates curvature equivalent to four complete circles and reduces maximum grade 30 per cent. It also is free from the snow tie-up hazard. The old line, following a deep canyon, required heavy snow barriers for long distances.

With the completion of the new Cascade tunnel some time in January the Great Northern's entire operations between Wenatchee and Skykomish, 74 miles, will be electrified.

A.R.A. Meets Nov. 21

R. H. Aishton, president of the American Railway Association, will preside over the meetings of that organization in the Biltmore Hotel, New York, Nov. 21 and 22. The Association

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B(M27)—C(M27)
GANG AND POWER CARS
A5—AT2—MT2—ST2—WS3
PUSH CARS AND TRAILERS
T1—T2—T3—T12—T20
—T24—T25
ROLLER AXLE BEARINGS
Ringseald-Axlsaver—Bower
—Hyatt—Timken
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QB—PHB—PHA—QHB and W
WHEELS AND AXLES

FAIRMONT M2
Master Section Car seats 10 men; top raises for adjustments; 6 H. P. engine; Endless Cord Belt Drive

of Railway Executives will meet at the same time and place.

Railroad valuation, legislation to facilitate voluntary consolidation, remedial measures designed to give the carriers the rate of return officially designated as fair, government development of waterways, motor transport and a large number of other subjects will engage the attention of the delegates to the meetings. The official program is in course of preparation.

China Needs Railway Supplies

The Chinese Eastern Ry. has sent a circular letter to firms interested in making sales to it, stating that it was desirous of introducing a system of payment whereby the entire sum would be remitted upon delivery, suggesting the following two alternatives: 1. 50 per cent to be paid when documents are delivered at Harbin, and the balance when final acceptance has taken place; 2. The entire 100 per cent to be paid upon final acceptance. Heretofore, it has been customary for firms selling to this railway to specify as terms of payment, the opening of a letter of credit for 50 per cent of the amount involved and payment of the balance when delivery is made.

Business Certainly Does Look Better

The New York Central announced at the end of October the purchase for delivery in 1929 of 191,550 tons of steel rails at a total cost of $8,250,000. The order was distributed among the following: Bethlehem Steel, 82,030 tons; Dominion Iron and Steel, 11,690 tons; Carnegie Steel, 13,310 tons; Illinois Steel, 69,140 tons, and Inland Steel, 15,380 tons. This compares with 177,140 tons ordered for 1928 delivery.

The Chicago and North Western has placed orders for about 6,000,000 feet of Douglas fir bridge timber and maintenance of way lumber with the West Coast Lumber Co.

The Youngstown Sheet and Tube Co. and the National Tube Co. have received an order for pipe to construct a 400-mile pipe line from the Shell Pipe Line Co. The line will cost around $15,000,000.

The Pennsylvania Railroad has asked bids for 260,000 tons of steel rails for delivery in 1929, to cost about $11,100,000, and for the attachments, including fastenings, tie plates, bolts and spikes, upward of $6,500,000 more, making the total for both rails and attachments about $17,600,000.

Well, Well; Railroad Wins Tax Suit

The Kansas City Southern and the Texarkana-Ft. Smith railroads won their suit in the United States Supreme Court against the state of Arkansas on the question of whether a railroad is subject to penalty for delinquent taxes when those taxes were in litigation. Carriers as owners of certain county lands were asked to pay county road taxes which they declared were invalid because not properly assessed.

Fewer Robbery Claims

In the first six months in 1928 the railroads established a new low record in the amount of claims paid by them growing out of robbery of freight while in transit. Robbery losses in the first six months this year totaled $537,260, a decrease of $100,781 or 15.8 per cent compared with the same period in 1927. This also was a decrease of $5,700,000 below the amount paid in the first half of 1920, which losses from that cause were the greatest in the history of the railroads. Claims growing out of robbery of entire package paid during the first half of the year totaled $328,797 while claims growing out of robbery other than entire package amounted to $208,463. In both instances, these items were decreases under the amounts paid during the same period in 1927 and also in 1926.

New Railroad Finished

The Denver & South Plains, the 202-mile branch of the Colorado & Southern tapping the main line at Estelline, Tex., and running to Lubbock, the construction of which started December, 1926, has been completed and November 24 set as the day for the formal opening. The cost of the work, exclusive of rolling stock, was about $7,000,000. Headquarters of the new division will be at Childress, according to Frank E. Clarity, vice president and general manager.

New Line in South

Construction of the new short line railroad, the Atlantic & Northwestern, from McClellanville to Mount Pleasant, will be begun by December 31, according to Alva M. Lumpkin, of Columbia, general counsel for the railroad. The time for construction was extended by the state railroad commission from October 15 to December 31, following an explanation by Mr. Lumpkin.

Great Northern Begins New Truck Line

Through its bus-operating subsidiary, the Northland Transportation Co., the Great Northern Railway has entered the truck operating field and coincident with the granting of its first truck operating permit has obtained authority from the state commission to discontinue two mixed trains with an estimated resultant saving of $10,000 a year.

Incorporated three years ago and developed under the personal direction and supervision of Ralph Budd, president of the Great Northern, the Northland Transportation Co. soon became the largest bus operating company in the Northwest. Many of its lines parallel Great Northern rail lines and some of them compete with other railroads. Several local passenger trains, most of them Great Northern, have been discontinued at considerable saving to the railroad company, on showing before the state commission that adequate service was provided by the bus lines.

The order granting the truck-operating permit specifies that the truck line will handle less than carlot shipments between its terminals and intermediate points but that it will handle only business billed by the Great Northern at its depots.

Santa Fe Into Harbor District

Work on the construction of a permanent right of way into the Los Angeles harbor district for the Santa Fe line, under the agreement with the harbor department made two years ago last spring, when a temporary right of way was arranged, is to be started immediately. The harbor board has appropriated $100,000 as a starter.

The board's report placed total cost of the project at $667,946, divided so that the estimate north of Anaheim viaduct is $466,850 and south of that point the estimate is $211,096. Length of the permanent right of way will be 2.60 miles, of which 1.48 miles north of Anaheim viaduct cost $315,000 a mile and the 1.12 miles south of the viaduct will cost $180,200 a mile.

Estimated cost of the 7.02 acres of land required for the trackage from Reyes street to the viaduct is $129,550, while five acres from the viaduct to the foot of McFarland avenue is $103,196.60.

Speeding Up the Freight

The daily average movement per freight car for the first eight months this year was 30.3 miles a day, the highest average ever attained by the railroads. This was an increase of four-tenths of one mile above the daily average for the same period last year. The average daily movement per freight car in August was also the highest for any August on record, amounting to 32.1 miles a day. This was an increase of 1.2 miles above the daily average for August last year.

The average load per car in August was 27.2 tons, including less than carload lot freight as well as carload lot freight. This was a decrease of four-tenths of one ton under the average for August last year. For the first eight months in 1928, the average load per

car was 26.5 tons, compared with 27.3 tons for the same period in 1927 or a decrease of eight-tenths of one ton.

Ton Miles Increased in August

The volume of freight traffic handled by the Class 1 railroads in August this year amounted to 42,406,223,000 net ton miles. This was an increase of 422,-031,000 net ton miles or one per cent over August, 1927. In the eastern district, there was a decrease in the volume of freight handled of 2.4 per cent in August, 1928, compared with the same month last year, while the southern district reported a decrease of 6.5 per cent. The western district reported an increase of 8.4 per cent.

Another P. R. R. Dining Car School

Announcement is made that a training school, third of its kind, for Pennsylvania Railroad dining car stewards, cooks and waiters has been established at Sunnyside Yard, Long Island City, New York, eastern headquarters of the company's dining car and commissary activities. The other two schools are at Columbus, O., and Chicago. A dietetical kitchen is operated also in which expert chefs are engaged constantly in developing new and improved dishes and food combinations and in testing the best recipes of famous hotels and restaurants to determine their adaptability to railroad dining cars.

The Pennsylvania Orders Airplanes

Announcement comes from the Pennsylvania Railroad that orders have been placed through its associated company, Transcontinental Air Transport, Inc., for ten tri-motored Ford planes to be used in the combined rail and air service which the railroad and the air company will establish early next spring between New York and the Pacific Coast. This first equipment order for the coast to coast rail-air line was made after the most exhaustive tests of all types of planes available for the service. It represents the largest single order ever placed for Ford tri-motored airplanes. The cost of the new ships, with accessories, will be approximately $800,-000. The Ford Company expects to deliver the entire order by February 1, 1929.

The Ford planes just ordered will embody the very latest features in design and construction and the most modern and improved devices insuring the safety and comfort of passengers. They will have a top speed of about 135 miles an hour and a cruising speed of about 115 miles an hour. The schedule on the coast to coast rail-air line will average 100 miles an hour. The ships will accommodate 12 passengers, in addition to a pilot, a mechanic and a steward. Both the mechanic and steward will be capable of flying the plane. The steward will look after the comfort and convenience of passengers and be of general assistance. Space will be provided for baggage and full radio equipment.

The planes will be equipped with three Pratt Whitney wasp motors, each of 400 horsepower. Intensive tests show that the planes fly efficiently on two motors and can be sustained in the air by one.

Under the present plans, passengers will leave Pennsylvania Station, New York, at 6:05 p.m. on the "American," the Pennsylvania Railroad's limited de luxe flyer, to St. Louis, spending the night in a sleeping car. In the morning, transfer will be made to an airplane at Columbus, O., with a daylight flight to Dodge City, Kan. Two intermediate stops will be made, one at St. Louis for luncheon and the other at Kansas City After dinner at Dodge City, the passengers will board a train on the Santa Fe for a second night's journey in a sleeping car. This train will also be of de luxe type and will embody in its equipment the very latest and most attractive features of modern railroad travel. Upon arrival at Las Vegas, N. M., the next morning, passengers will resume air

Carloads of Gold

THE annual cost of government, national, state and local, is estimated now to exceed the annual total value of wheat, corn, tobacco, and all farm crops excepting livestock. Annually the national debt is being reduced by about $750,000,000, while state and local debt increases more than $1,250,000,000.

If a man born nineteen hundred and twenty-eight years ago had made a $10 gold piece each minute of the 1440 minutes each day since that year, the total amount would be less than the $10,000,000,000 annual cost of government.

Fourteen freight cars, each bearing 49 tons of gold coin, would have been required to deliver the taxes paid by Class 1 railways last year, had these been paid in gold. Last year these railways paid in taxes $376,110,243, or $11.90 every second, every day of the year. Six cents of every dollar paid by the public in passenger fares, for transportation of freight and incidental services actually is paid for taxes.

Since 1911 railway taxes have increased 281 per cent and railways are compelled to pay to state and local governments enormous increases in taxes on improvements made to provide adequate service, many of which improvements provide no additional revenue, nor serve to reduce railway expenses.

As the public reaps the benefit of all railroad economies the lowering of railway taxes, the single expenditure over which railroads have no control, would be in the public interest.

SOUTHERN PACIFIC

travel for the final lap of the journey to the coast, arriving at either Los Angeles or San Francisco late that afternoon. The entire coast to coast trip will consume approximately 48 hours, or about half the time required to make the present all-rail journey.

Lackawanna to Build Big Warehouse

The Lackawanna Railroad has purchased 15 acres in north Jersey City, N. J., on which it will erect what it is said will be the largest dry storage warehouse under one roof on the entire Atlantic Seaboard devoted exclusively to general storage, warehouse and distribution purposes. The main building will be 848 feet long and 162 feet wide, of steel, concrete and brick construction, with steel doors and window frames. The first and second floors will contain l.c.l. freight stations. All other floors will be used for warehouse, storage, manufacturing and assembling purposes. Extensive l.c.l. freight and warehouse delivery platforms, each provided with independent tail-board space, that for the latter alone being sufficient to accommodate 113 vehicles at a time, all under cover and entirely clear of city street areas, will be provided at street level.

The warehouse part of the building will be served at the second floor level by tracks having a total capacity of 52 cars, while tracks having a capacity of 70 cars will serve the l.c.l. freight station from the opposite side of the building.

Air Line Merger

Negotiations for a $6,000,000 consolidation of nine aviation companies operating air lines, factories and schools throughout the Middle West are reported consummated.

The combined company, to be named the Universal Aviation Corpn., will operate routes between Cleveland, Chicago and the Twin Cities, between Chicago, St. Louis, Kansas City and Omaha and between Duluth, Minneapolis and Fargo. Other lines are projected from St. Louis to Tulsa and Dallas and from Dallas to Columbus, O.

The consolidated companies include the Universal Air Lines, Robertson Aircraft Corpn., Northern Air Line, Universal Air Lines System Terminal Co., Mid-Plane Sales and Transit Co., Northrup Airplane Co., Air Transportation, Inc., Egyptian Airways and Robertson Flying School.

Bus Supplants Steam Trains

By permission of the public utilities commission, the Denver & Rio Grande Western has taken off passenger trains on its branch line, Delta-Somerset Colorado, the traffic to be carried by the Western Slope Motor Way, Inc., a subsidiary of the railroad. It is agreed that the motor buses can serve the demand during the fall and winter, but at any time any condition makes it necessary the steam trains must be placed in service. This arrangement was agreed to for the light traffic season, steam trains to run during the spring and summer when traffic justifies it.

Revenue Loadings Up

Loading of revenue freight for the week ended October 20 totaled 1,162,095 cars, the car service division of the American Railway Association reported. The total for the week was an increase of 33,040 cars above the same week in 1927. Miscellaneous freight loading for the week totaled 462,714 cars, an increase of 19,620 cars above the corresponding week last year. Coal loading totaled 203,033 cars, an increase of 10,225 cars above the same week in 1927. Grain and grain products loading amounted to 51,826 cars, a decrease of 8,688 cars below the same week last year. In the western districts alone, grain and grain products loading totaled 36,952 cars, a decrease of 6,380 cars under the same week in 1927. Live stock loading amounted to 39,645 cars, a decrease of 1,037 cars under the same week last year. In the western districts alone, live stock loading totaled 31,907 cars, a decrease of 476 cars compared with the same week in 1927. Loading of merchandise less than carload lot freight totaled 269,584 cars, an increase of 173 cars above the same week in 1927. Forest products loading amounted to 65,381 cars, 2,492 cars below the same week last year. Ore loading totaled 59,500 cars, 14,215 cars above the same week in 1927. Coke loading amounted to 10,412 cars, 1024 cars above the same week in 1927.

Fewer Cars for Repairs

Class 1 railroads had 147,323 freight cars in need of repair Oct. 15 or 6.6 per cent of the number on line, according to reports filed by the carriers with the car service division of the American Railway Association. This was a decrease of 1,010 cars below the number reported on October 1, at which time there were 148,333.

Freight cars in need of heavy repair on October 15 totaled 106,311 or 4.8 per cent, a decrease of 1,691 compared with October 1, while freight cars in need of light repairs totaled 41,012 or 1.8 per cent, an increase of 681 compared with October 1.

Class 1 railroads had 93,204 surplus freight cars in good repair and immediately available for service Oct. 23, the car service division of the American Railway Association announced. This was an increase of 7,379 cars compared with October 15, at which time there were 85,825 cars. Surplus coal cars on October 23 totaled 17,229 cars, an increase of 2,343 within approximately a week, while surplus box cars totaled 49,064, an increase of 3,883 for the same period. Reports also showed 14,805 surplus stock cars, an increase of 2,239 cars over the number reported on October 15, while surplus refrigerator cars totaled 4,208, a decrease of 955 for the same period.

Current Shipbuilding

American shipyards were building or under contract to build, Oct. 1, for private shipowners 433 steel vessels of 205,820 gross tons compared with 438 steel vessels of 208,786 gross tons on September 1, 1928, according to the bureau of navigation, department of commerce. There were 81 wood vessels of 36,188 gross tons building or under contract to build for private shipowners during the same period compared with 71 wood vessels of 25,842 gross tons on September 1, 1928.

New Air Line to Mexico

The newspaper El Continental has been advised that another air mail and passenger line will be established in Mexico before the end of the year. The new line will connect Monterey, Nuevo Leon and the port of Mazatlan, Sinaloa.

R. R. Div., A.S.M.E., for National Meet

The executive committee of the railroad division, American Society of Mechanical Engineers, is completing arrangements to coordinate the complete program of the annual winter meeting of the society, to be held in the Engineering Societies Building, 29 West 39th street, New York, December 2-7. This procedure, instead of having a separate national railroad division meeting for several days, was adopted because a number of associations meet during the year and the executive commitee, railroad division, did not consider it advisable to add another. Instead, it is taking advantage of the papers and reports being presented by other professional divisions at this meeting and with its own two-sessions' program of four papers, it has developed a program for the railway mechanical engineer which extends over the entire five-day period. In addition to the technical program of the A.S.M.E. the National Exposition of Power and Mechanical Engineering will be held at the Grand Central Palace, New York. The seventh exposition which is to be held December 3 to 8, 1928, inclusive, will have a large display of the latest developments in power plant, heating and ventilating and

other mechanical equipment. The program has been arranged to afford a minimum of conflict between meetings in which the railway mechanical engineer may be interested. The consolidated program may be obtained by addressing M. B. Richardson, secretary, railroad division, A.S.M.E., 30 Church street, New York.

Automotive Engineers Met Oct. 17

More than 400 persons attended the transportation meeting of the Society of Automotive Engineers, October 17, 18 and 19 at the Robert Treat hotel, Newark. Papers were read by R. A. C. Henry, director, bureau of economics, Canadian National; H. M. Taylor, president, and G. W. Daniels, U. S. Trucking Corpn. F. C. Murdoch, Yellow Way Pioneer System, Inc., spoke on the long haul. He predicted there soon would be hourly service between Los Angeles and New York, but said the use of sleeping coaches is still experimental. The cost of the sleeping coach makes necessary an advance in the price of the ticket, which is not satisfactory as the first consideration of the motor coach patron usually is economy.

Fire Prevention Meet

F. R. Bradford, supervisor of fire protection and safety agent, Boston & Maine, was elected president of the Railway Fire Protection Assn., at the 15th annual meeting held October 9 to 11 at the Gibson hotel, Cincinnati. E. Moore, insurance commissioner of the Canadian Pacific, was elected vice president and R. R. Hackett, chief inspector of the Baltimore & Ohio, was re-elected secretary and treasurer. Causes and possible means of prevention of fires were discussed, with reports from special committees on protective measures and the best means of extinguishing fires. A total of 4,283 fires, resulting in a loss of $4,328,631 were reported in 1927, which is a decrease both in the number of fires and the loss per fire.

Tramway Reports Earnings

The Denver Tramway Co. having won its suit through all the courts which ruled that it had a perpetual franchise, reported October 25 that for the nine months of this year it had net earnings, after deduction of interest charges, of $377,511. The total operating revenue for the period decreased $67,843 below the same period in 1927. Its net operating income shows an increase of $22,521 accounted for by economy. Its total operating revenue was $3,204,651 and this is said to give it a return of only 4 per cent on its investment. The courts said it was entitled to a return of 7½ per cent. Nothing was said about raising the fare, which is at present eight cents or two tokens for 15 cents.

Fewer Rail Employes

The number of employes reported by Class 1 railways July, 1928, was 1,728,690, compared with 1,823,335 in July, 1927, decrease of 94,645, or 5.2 per cent. Total compensation was $241,831,372, against $249,314,967, decrease of 3 per cent.

Compared with the returns for the corresponding month last year, the summary for every reporting group shows a decrease in the number of employes. In the executive group, covering executives, officials and staff assistants, there was a decrease of 198 employes; in the maintenance of way group, 34,697; in the maintenance of equipment group, 31,991, and in the transportation group, 17,421.

Losing, But Still Saving Money

A striking demonstration of economy and efficiency is shown in the report of the Pennsylvania Railroad for September, for the nine months, January 1 to September 30, and for like periods in 1927 and 1926. In September, 1926, gross revenues were $63,040,729 and the net railway operating income $12,387,793. In September, 1927, the gross was $58,975,721 and the net $12,074,326. In Sep-

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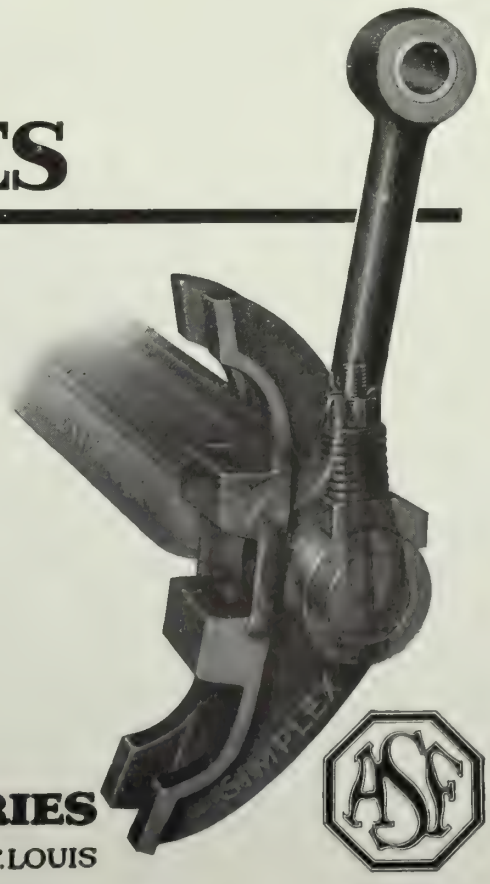

AMERICAN STEEL FOUNDRIES
NEW YORK CHICAGO ST. LOUIS

tember, 1928, gross amounted to $57,-296,570 and the net $12,136,001. Here was a constant drop in gross revenues for two years since 1926 with the net railway operating income remaining pretty nearly stationary, a feat made possible only by careful, loyal and economical operation attributable to the whole personnel from the highest officer to the least of the operating forces.

Equally interesting is the result for September, this year. In this month the report of revenues shows decreases in almost all the branches of the road: freight, passenger and express, and in all other operating receipts except the mail. In the other column showing expenses the proof of the pudding is found. Maintenance of way and structures expense increased $280,785; expenses chargeable to traffic increased $54,396; general expenses increased $10,822; taxes increased $80,000. There were decreases in expenses for maintenance of equipment, transportation, and in miscellaneous operating expenses; total decrease in railway operating expenses $1,867,942. The recapitulation shows that gross revenues in nine months of 1926 were $521,390,880 and the net railway operating income $77,481,267. In the same nine months of 1927 gross was $506,133,401 and the net $82,530,835. In the nine months referred to in 1928 the gross revenues were still lower, $477,-993,779, but the net railway operating income continued to ascend, amounting to $84,517,447, or $7,036,180 more than in 1926 when the gross revenues were $43,397,101 higher.

N & W Efficiency Conference

More than 450 officers and employes of the Norfolk & Western attended the ninth annual meeting of the System Efficiency organization at the Hotel Roanoke, Roanoke, Va., October 9 and 10. The session was opened with addresses by B. W. Herrman, and W. S. Battle, Jr., vice presidents, and J. E. Crawford, general manager. At the banquet, the first evening, Harry L. Gandy, executive secretary of the National Coal Assn., made the principal address. The second day was devoted to discussion of methods by which there could be greater efficiency and to the reading of papers intended to promote such discussion. The papers were presented by Joe Marshall, special representative, claim prevention division of the A.R.A.; R. V. Conrad, chief clerk to the general superintendent of transportation, Roanoke; T. L. Brown, master mechanic, Bluefield, W. Va.; R. M. Taliaferro, agent, Lynchburg; C. P. Harris, dispatcher, Roanoke; L. B. Hurd, assistant agent, Pulaski, Va.; R. A. Nelson, trainmaster, Portsmouth, O., and C. E. Pritchett, agent, Gary, W. Va.

Railroaders at Purdue

The laboratories at Purdue University, Lafayette, where the A.R.A. is conducting a series of air brake and draft gear tests were visited by 115 railroad men October 11. The day had been set aside as an inspection day that members of the mechanical division of the association might investigate and become familiar with test methods. The visitors, representing more than 50 roads, were conducted through the laboratories by Dean A. A. Potter and Prof. G. A. Young of Purdue, H. A. Johnson, director of research, A.R.A., and C. A. Gray, manager of draft gear tests.

Government Ownership in Peru Failed

The government of Peru, a dispatch from Lima says, has presented to congress a contract which calls for delivery to the Peruvian Corpn. in perpetuity 1,166 miles of railroad which the corporation now operates, over half of the nation's entire rail system.

The contract contains a clause by which the government may recapture the lines at any time after 1973, when the present concession expires. The contract involves—at the present valuation—property worth 16,800,000 sterling. The government would receive immediately 247,000 sterling and escape payment of 680,000 in annual subsidies.

In presenting the project to the government Minister Masias declared the government's present resources were notoriously insufficient to meet the great necessities of the country's material progress.

Protests Tax Valuation

C. C. Hamlin of Colorado Springs, representing the Midland Terminal Railroad Co. before the Colorado tax board, stated that the valuation of the railroad was raised from $731,000 to $844,000 in 1924 and it has not been lowered since, even though the road lost $57,000 last year and the business continues to dwindle. It operates between Colorado Springs and Cripple Creek.

Must Continue to Operate

The Colorado & Southern has informed the public utilities commission of Colorado that it was losing money operating passenger trains between Fort Collins and Greeley, Colo., and asked permission to abandon that service Strong opposition arose and the commission instructs the company to continue to run the trains until it can investigate, naming April 28, 1929, as the date for hearing.

Grade Crossing Accidents Increased

Highway grade crossing accidents in the first six months this year resulted in 1,097 fatalities, an increase of 36 compared with the corresponding period in 1927, reports of the American Railway Association show. For the six months, 2,634 accidents occurred at highway grade crossings, an increase of 73 compared with the same period last year. Persons injured in such accidents in the first half of 1928 totaled 2,934 or an increase of 33 compared with the first half of 1927. In June there were 210 fatalities at highway grade crossings compared with 189 for the same month last year.

How About This Knock?

O. O. MacIntyre of New York writes a daily column which is used in about 300 newspapers in every part of the country. It is stated by those who know that his column is read with a devout eagerness. In his column for October 21, shortly after he returned to New York from the Pacific Coast, MacIntyre wrote:

"Some time ago I advised those about to ship automobiles to the coast not to do it unless they did not care when the shipment arrived. I can now repeat the same warning for the return trip.

"The freight business provides about 75 per cent of railroad revenue without, at least it is my experience and that of many of whom I have made inquiry, any semblance of the courtesy and service of the passenger department.

"I have found mostly surliness and lack of courtesy in the freight departments of railroads in general. They are great 'promisers' but when you call upon them to fulfill promises they seem to regard it as a personal affront.

Freight Claims Decrease

Freight claims paid by the railroads during the first six months in 1928 growing out of loss and damage to freight shipments were the lowest for any corresponding period in recent years, according to reports just received for that period from the carriers by the freight claim division of the American Railway Association. Total claims paid during the first half of the year totaled $18,834,897 compared with $19,820,223 for the first six months in 1927.

New Bulletins

The Chicago Pneumatic Tool Co., 6 East 44th street, New York, has just issued four new bulletins, copies of which may be had upon request. Bulletin 700 describes power driven Duplex Air Compressors; Bulletin 720 deals with straight line steam and power driven Air and Gas Compressors; Bulletin 773 describes the Giant Semi-Diesel Oil Engines, and Bulletin 787, the electric motor driven Pneumatic Portable Compressors.

Railway Construction

Tracks & Yards

CALIFORNIA.—The Southern Pacific has permission to construct a six-mile line from Kerman to Biola, France county.

COLORADO.—The Colorado & Southern has applied for permission to abandon line and branches from Waterton to Leadville, 185 miles. The construction of a reservoir in Platte Canon will destroy all through traffic on its Denver-Leadville line, it was stated.

INDIANA. — The Baltimore & Ohio has let a contract to John C. Sunderman, Gary, for approaches to a viaduct over tracks on the Dunes highway at Miller.

MISSISSIPPI.—The Canton & Carthage has permission to acquire from the Pearl River Valley Lumber Co. and to operate, 33 miles of track from Canton to Carthage, and to operate over 1.15 miles of Illinois Central track at Carthage.

SOUTH CAROLINA. — The Atlantic & Northwestern has permission to construct a 50-mile line from Mount Pleasant to Jamestown by way of McClellanville.

TEXAS.—The Chicago, Rock Island & Gulf has permission to acquire and complete the construction of a 108-mile line from Amarillo to the Texas-Oklahoma state line, forming a part of a new route between Liberal, Kans. and Amarillo. About half the line has been constructed by the Chicago, Rock Island & Pacific, the parent company.

A proposed report by Examiner H. C. Davis, recommending that the Cane Belt, a subsidiary of the Santa Fe, be permitted to construct a 35-mile line from a point on its Lane City-Magnet line to a connection with the Gulf Colorado & Santa Fe near Thompsons, has been made public. The report recommends denial of permission to the St. Louis, Brownsville & Mexico to construct extensions from a point between Brazoria and Allenhurst northwest to the boundary line between Fort Bend and Wharton counties, 25 miles, and from a point near Algoa northwest to Dickinson, nine miles. The occasion for the applications is the expected development of a sulphur mine at Boling Dome.

The Waco, Beaumont, Trinity & Sabine has let a contract to the Foundation Co., New York, for extensions from Weldon to Waco, 109 miles, and from Livingston to Port Arthur by way of Beaumont, 95 miles. The contract covers construction of line, stations and similar structures. Plans call for construction of the main shops at Trinity.

VERMONT.—Receivers of the Central Vermont and the New London Northern have asked permission to abandon the 35-mile West River line from South Londonderry to Brattleboro. West River stock is owned principally by the New London Northern, and the Central Vermont, which operates it, owns its mortgage bonds. About $205,000 would be needed to restore the property to the condition prior to the floods of November, 1927, the application states.

WISCONSIN.—The Chicago & North Western has asked permission to abandon immediately 6½ miles of its line from Bonita to the Langlade-Oconto

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PHILADELPHIA CHICAGO ST. LOUIS MONTREAL WINNIPEG
BUENOS AIRES MANILA AUSTRALIA

county line, and to abandon the remaining nine miles September, 1930, after the removal of timber adjacent to it.

WYOMING.—N. A. Swenson, Laramie, has a contract from the Laramie Valley for bridges, trestles and culverts on the ten-mile line between the Molith Portland Co. quarries and this town.

Buildings and Structures

ALABAMA.—Mobile. The W. Horace Williams Co., New Orleans, has a contract from the Lousiville & Nashville for buildings in connection with the new yard and terminal, including a brick enginehouse, machine shop, power house, boiler and blacksmith shop, office building, store house, coaling station, cinder pits and water supply system.

CALIFORNIA.—San Jose. The Southern Pacific is planning to construct addition terminal facilities to cost $3,250,000. This will include track and a passenger station. An additional 40,000 feet of track is to be built soon in the San Jose yards, to cost about $200,000.

—Tiburon. It is reported that the Northwestern Pacific will construct a machine shop here to cost about $25,000.

CANADA.—Winnipeg. The Canadian Pacific has let a contract to the Claydon Co., Winnipeg, for a freight car shop which, with equipment, will cost $400,000.

ILLINOIS.—Charleston. The Roberts & Schaefer Co. has a contract from the Nickel Plate for a "N. & W." type cinder plant.

INDIANA.—South Bend. The contract for the New Jersey, Indiana & Illinois three-stall enginehouse has been awarded to John Nelson & Co. The estimated cost is $50,000.

—South Bend. Foley Brothers, St. Paul, have a contract from the Grand Trunk Western for a bridge over the St. Joseph River here, and an arch bridge over Mishawaka avenue. This is part of a program to remove the Grand Trunk tracks from Division street and to provide an entrance to the new union station over the New York Central track elevation.

NEW JERSEY.—Woodbury. A contract for a $45,000 undergrade bridge here and a $55,000 bridge at Woodlawn has been let to Daniel S. Bader Construction Co., Atlantic City, by the Pennsylvania.

NEW YORK.—Wayneport. The New York Central will drop the ashes here on all sections of the Twentieth Century and other fast trains between New York and Buffalo and has awarded a contract to the Roberts & Schaefer Co. for the equipment, consisting of one 3-track and one 2-track "N. & W." type electric cinder plants.

PENNSYLVANIA.—Washington. The Roberts & Schaefer Co. has a contract from the Pennsylvania for a combined engine coaler and electric cinder plant to be erected here.

SOUTH DAKOTA.—Rapid City. The Kepp Construction Co. of this city has a contract from the Rapid City, Black Hills & Western for a $30,000 machine shop and enginehouse.

TEXAS.—Smithville. The M.K.T. has ordered from the Roberts & Schaefer Co. equipment for a sand storage and drying plant now being built here.

WASHINGTON.—Seattle. The Great Northern will soon start construction of a two-story office building at Fourth avenue and Union street for traffic officers' headquarters and a ticket office.

Equipment Orders

According to figures published recently by the Dominion Bureau of Statistics, production of railway rolling stock in Canada reached a new high record in 1927. Reports cover the manufacture of new cars, engines and parts as well as the work done in the larger repair shops.

The total value of the production for 1927 was $74,466,912 or two per cent greater than in 1926 and 40 per cent greater than in 1925. Thirty-five firms were among the reporting companies whose combined production for the year included 5,005 new cars, valued at $14,640,385 and 57 new locomotives, valued at $4,417,770.

Locomotive Orders

Locomotives placed in service by Class 1 railroads during the first nine months in 1928 totaled 1,088, a decrease of 388 compared with the same period last year. Locomotives on order October 1, this year, totaled 113 compared with 134 on the same date in 1927.

Locomotives in need of repair on October 15 totaled 8,606 or 14.6 per cent of the number on line, 7.9 per cent in need of classified repairs and 6.7 per cent in need of running repairs. Serviceable locomotives in storage October 15 totaled 5,098 compared with 5,661 on October 1.

The Buffalo, Rochester & Pittsburgh is inquiring for 25 locomotives; Illinois Central, four electric switching locomotives; Manufacturers Railway Co., two switching locomotives, and the Pacific Fruit Express, one 0-4-0 type locomotive.

The Lacakawanna ordered 20 4-8-4 locomotives from American; Denver & Rio Grande Western, 10 4-8-4 locomotives from Baldwin; Donner Steel Co., Buffalo, three 300 h.p. oil-electric locomotives from Ingersoll-Rand Co., General Electric Co. and American Locomotive Co.; Alaska Railroad, one Mikado from Baldwin; Canadian National, five Mountain type (modified) from Canadian Locomotive Co.; Rapid City, Black Hills & Western, one locomotive from Heisler Locomotive Works; Cleveland Union Terminal Co., an unstated number of electric locomotives from General Electric.

Passenger Car Orders

Orders placed since the October issue of Transportation include the following: Southern Pacific, 25 steel dining cars with Pullman Car & Mfg. Corpn.; Lackawanna, two dining cars with Pullman Car & Mfg. Corpn.; Louisville & Nashville, one combination passenger and baggage gas-electric rail motor car with J. G. Brill Co.; Louisiana & Arkansas, one combination baggage and mail gasoline rail motor car and one passenger trailer car with J. G. Brill Co.; Reading Co., one combination passenger, baggage and mail gas-electric rail motor car and three passenger trailers with J. G. Brill Co.; Rapid City, Black Hills & Western, one gasoline rail motor car with Edwards Railway Motor Car Co.; Uruguay State Railways, one combination baggage and passenger gasoline rail motor car with J. G. Brill Co.; Hamilton Street Railway, Hamilton, Ont., 12 new cars with National Steel Car Co.; Canadian Pacific, 15 first class coach frames and 15 dining car frames with National Steel Car Co., and 29 sleeping car frames with Canadian Car & Fdy. Co. The Burlington will build 20 steel suburban coaches, 11 trailers, and convert one steel baggage car into a combination baggage and mail car at its Aurora shops.

The Canadian National is inquiring for 30 sleeping cars, 10 buffet parlor sunroom cars, 25 first class coaches and two combination baggage and smoking cars for service in Canada and three buffet parlor sunroom cars for service in the United States. This road also contemplates coming into the market for five mail and express cars and 10 sleeping cars for service in the United States. Other inquiries include those of the Rock Island for 15 suburban coaches and five steel baggage cars; Norfolk & Western, ten all-steel express cars and five all-steel mail and baggage cars; Denver & Rio Grande Western, three observation cars and two baggage and mail cars. The Chesapeake & Ohio has renewed its inquiry for six gas-electric rail motor cars; the New York Central has received bids for rebuilding 50 steel underframe coaches. As a re-

sult of the injunction restraining the Detroit Street Railway department from proceeding with a contract with the Perly A. Thomas Co. for purchase of 100 new cars, the department plans to manufacture street cars in its Highland Park shop, and will be in a position to start construction within 90 days.

Freight Car Orders

According to reports filed with the A.R.A., freight cars placed in service by Class 1 roads in the first nine months this year totaled 46,574, a decrease of 12,131 compared with the same period last year. Freight cars installed in September totaled 4,002 compared with 6,431 in September last year. The railroads had 7,522 freight cars on order on October 1, compared with 14,833 on the same date last year.

The Rock Island is inquiring for 1000 box cars, 1000 gondolas, 500 stock cars, 250 flat cars and will also issue inquiries for 250 ballast cars in the near future; Wabash, 2000 automobile cars; American Refrigerator Transit Co., 1000 refrigerator cars; Buffalo, Rochester & Pittsburgh will be in the market shortly for 1000 box cars and probably will inquire for 2000 coal cars; Canadian National, 300 flat cars, 500 refrigerator cars, 500 automobile cars (also contemplates buying from 100 to 200 ballast cars); Chicago & North Western, 400 gondolas and 100 caboose underframes; Richardson Refining Co., Fort Worth, 200 tank cars; Chiriqui Land Co., Panama, 50 freight cars; Lehigh & New England, prices on repair of 200 steel gondola cars. The Royal State Railways of Siam will receive bids at Bangkok, Siam, until Jan. 15, 1929, for 300 low side all steel cars. The Missouri Pacific is reported to be preparing an inquiry for 3000 cars, and the Santa Fe, Illinois Central and other western roads are expected to enter the market in the near future. It is expected that 40,000 cars will be on inquiry in the next few months.

The Canadian Pacific has ordered 250 refrigerator cars from the National Steel Car Corpn., 275 ballast cars from the Canadian Car & Foundry Co., 300 flat cars and 300 coal cars from the Eastern Car Co., and 25 caboose cars to be built at its Angus shops; Northern Refrigerator Car Co., 300 refrigerator cars from Pullman Car & Mfg. Corpn.; Lackawanna, 100 automobile cars from American Car & Fdy. Co.; Lazote, Inc., 25 tank cars from General American Tank Car Corpn.; Barrett Company, six tank cars from General American Tank Car Corpn.; Maine Central, four steel box cars from Standard Steel Car Co.; Frisco, underframes and steel parts for rebuilding 10 box cars, from American Car & Fdy. Co.; Youngstown Sheet & Tube Co., 200 mine cars from Enterprise Wheel & Car Corpn.; Great Northern, 500 steel underframes from Pressed Steel Car Co. The Pennsylvania will build 1000 steel box cars and increase the capacity of 983 gondolas from 50,000 to 70,000 pounds by substituting heavier trucks at its Altoona shops; the Norfolk & Western will build 500 all steel automobile cars at its Roanoke shops; the Southern Pacific, Texas Lines, will build 300 box cars at its own shops; the Central of New Jersey is rebuilding 500 ice cars as box cars at its own shops; the Chicago, Indianapolis & Louisville is building 100 box cars at its own shops; Swift & Co. is building 300 refrigerator cars at its own shops, the underframes having been ordered from Bettendorf Company; the Burlington is rebuilding 498 composite gondola cars at its Galesburg shops; will build one dyamometer car at its Aurora shops, and is rebuilding box cars at the rate of eight a day at its Havelock, Neb., shops.

Bus and Truck Orders

Recent orders and deliveries include the following: Community Traction Co.,

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ECONOMY BAFFLE WALLS

THEY INSURE MAXIMUM LIFE OF BRICK WITH A MINIMUM WEIGHT ON THE ARCH TUBES

THE ECONOMY METHOD of SUPPORTING SIDE BRICK on TRUNNIONS ELECTRICALLY WELDED to the SIDE SHEET ELIMINATES the liability of the side brick dropping into the fire bed and the necessity of straightening or replacing bent arch tubes.

THE ECONOMY METHOD provides radiant heat near the side sheets, causing more complete combustion in this "COLD" area. It also PREVENTS the accumulation of coke and slag in the "pockets" resulting when inclined side brick are used, thus increasing the active firebox heating surface.

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656 S. Los Angeles St.
Phone: Vandike 4256

Toledo, 12 White 33-passenger buses; Original Stage Line, Los Angeles, seven Twin Coach parlor coaches; Boston Elevated Railway, six Twin Coach urban coaches; Chicago Surface Lines, three Twin Coach urban coaches; Blue Goose Motor Coach Co., E. St. Louis, three Twin Coach urban coaches; Niagara Safety Lines, Ltd., Windsor, Ont., two Twin Coach parlor coaches; National Railway Appliance Co., one Mack 29-passenger gas-electric bus; Pennsylvania, one type-Y Yellow coach; Pony Express Lines of Detroit, two Twin Coach parlor coaches; Southern Pacific Transportation Co., two type-W parlor coaches; West Branch Transit Co., Milton, Pa., three Mack 25-passenger city type buses; Western Slope Motor Way, one Mack 29-passenger suburban coach; Wisconsin Public Service Co., two Reo 21-passenger buses; Beach Grove Traction Corpn., Indianapolis, one International 15-passenger parlor coach.

Changes in Personnel

Executive and Operating

Stephen Baker, of the Bank of Manhattan Co., N. Y., has been elected a director of the Great Northern to succeed **Albert L. Ordean** of Duluth, deceased.

John R. Hitchcock

John R. Hitchcock, assistant general manager of the Santa Fe Coast lines, has been appointed acting vice president and general manager of the Panhandle & Santa Fe at Amarillo to succeed **R. H. Allison,** who is on sick leave. **F. B. MacKie,** superintendent of the plains division of the Santa Fe, with headquarters at Amarillo has been named to succeed Mr. Hitchcock at Los Angeles. Mr. Hitchcock was born in Woolwich, England. He entered the railway service in 1889 with the Iowa Central as messenger. He went to the Santa Fe as stenographer to the master mechanic in 1890, and continued to advance until he became secretary to the general manager in 1897. He was named assistant to the general manager in 1901, was made division superintendent and then assistant general manager.

R. E. Brooks, superintendent, Montana division, Union Pacific, has been appointed general superintendent of the northern district with headquarters at Cheyenne. Mr. Brooks succeeds **N. A. Williams,** promoted. Mr. Brooks has been with the U. P. since 1911, having started railroad work as a telegraph operator when he was 18. **Dalton C. Olmstead,** assistant to general manager at Omaha, has been named assistant to vice president, operation, at Omaha. Mr. Olmstead entered Union Pacific service as freight trucker and clerk 30 years ago. He was appointed assistant to the general manager in 1920. **Joseph P. Larson,** chief clerk to the general superintendent at Cheyenne, has been appointed assistant to the general manager at Omaha. **C. E. Brooks,** superintendent, Utah division, with headquarters at Pocatello, has been named superintendent of the Montana division with headquarters as before, and **A. L. Coey,** assistant superintendent at Green River, has been appointed superintendent of the Utah division to succeed Mr. Brooks.

M. B. McBride, assistant to the president of the Cowlitz, Chehalis & Cascade, with headquarters at Chehalis, has been appointed vice president.

Walter P. Chrysler has been elected a director of the Erie to succeed **George E. Marcy,** resigned.

H. V. Platt, general manager, Oregon Short Line, has retired after over 43 years of service with this company. **Henry J. Plumhof,** general superintendent, southern district, Union Pacific, with headquarters at Kansas City, will succeed Mr. Platt. Mr. Plumhof is succeeded by **William H. Guild,** now assistant to vice president, operation, at Omaha. Mr. Plumhof and Mr. Guild entered the service of the Union Pacific as boys, Mr. Plumhof as a blue

print handler at 17 and Mr. Guild as office boy at 15. They have been in the service about 30 years.

J. D. Caldwell, secretary and assistant treasurer of the Chicago & North Western, with headquarters at Chicago, has been elected vice president also. Mr. Caldwell has been with that road for 40 years. He began as a telegraph operator on the Delaware & Chesapeake when he was 17 years old. He is also a director of the Chicago & orth Western.

E. L. Bennett, chief clerk and inspector of the New York Central lines west of Buffalo has been appointed superintendent of passenger transportation of those lines, with headquarters at Cleveland.

W. H. Askew, assistant freight traffic manager, Gulf, Mobile & Northern, headquarters at Mobile, has been appointed assistant to the vice president, with headquarters as before.

The Southern Pacific has created the position of general transportation inspector and has appointed **A. A. Lowe,** trainmaster on the Coast division, to fill it, with headquarters at San Francisco.

Albert Wilcox, general superintendent of transportation, Canadian National, with headquarters at Winnipeg, has been promoted to assistant to the general manager, western region, with headquarters as before. Mr. Wilcox entered railway service in 1881 as an operator on the Toronto, Grey & Bruce, now a part of the Canadian Pacific.

The Long Island and the New York and Trenton divisions of the Pennsylvania have combined for operating purposes as the New York zone division, of which **George Le Boutillier,** vice president at New York, will be the executive head.

J. N. Cornatzer, passenger traffic manager and director of development of the Frisco has been named assistant vice president with headquarters as before at St. Louis.

George M. Murray, assistant superintendent of Erie terminals at Jersey City, has been appointed superintendent of the Delaware and Jefferson divisions, with headquarters at Susquehanna.

W. I. Smart, operating engineer, Canadian National, has been appointed general superintendent of transportation, with headquarters at Winnipeg.

L. C. Probert has been appointed vice president of the Erie with headquarters at New York in charge of industrial development.

R. A. Sewall, transportation assistant, Canadian Pacific, with headquarters at St. John, N. B., has been appointed transportation assistant at Montreal.

G. D. Hughey, superintendent of the Champlain division of the Delaware & Hudson, with headquarters at Plattsburg, N. Y., has been appointed superintendent of transportation with headquarters at Albany. Mr. Hughey is succeeded at Plattsburg by **Homer A. Empie,** general fuel agent.

Financial & Legal

G. F. Jackson, fiscal representative of the Southern Pacific of Mexico, with headquarters at Mexico City, has retired after more than 50 years of railroad work in Mexico, the United States and Scotland. **H. L. Welcer** has been appointed auditor of passenger accounts with headquarters at Guadalajara. **H. Oberfeld,** auditor of freight and passenger accounts, remains auditor of freight accounts. **J. C. Nevenzel** has been appointed auditor of miscellaneous accounts.

E. C. Mann, assistant secretary and assistant treasurer of the Wabash with headquarters at New York, has been appointed assistant secretary and assistant treasurer of the Ann Arbor with headquarters at New York to succeed **J. C. Otteson,** retired.

Purchases & Stores

Edward T. Monroe has been appointed general purchasing agent of the Buffalo, Rochester & Pittsburgh with headquarters at Rochester.

B. W. Roberts, assistant purchasing agent, Canadian Pacific, headquarters at Montreal, has been appointed general purchasing agent with headquarters as before to succeed **E. N. Bender,** resigned. Mr. Bender has been with the Canadian Pacific 47 years. He started as a clerk in the stores department of the Quebec, Montreal & Occidental, now a part of the C. P. R., and was appointed to the position from which he resigned in 1902. Mr. Roberts entered the service of this road as a clerk in the treasury department in 1890, being transferred to the purchasing department soon afterward. He was appointed assistant general purchasing agent in 1923. **T. M. McKeown,** purchasing agent at Vancouver, succeeds Mr. Roberts as assistant general purchasing agent and will be succeeded by **E. C. P. Cushing,** purchasing agent at Calgary. **Frank Cooper** has been appointed assistant purchasing agent at Vancouver. **R. J. White** has been appointed purchasing agent at Calgary and **J. Arnott** has been named assistant purchasing agent at that point. **W. T. Plumb** has been appointed assistant purchasing agent at Winnipeg.

Traffic

Earle C. Wight, foreign freight agent of the Baltimore & Ohio at Bal-

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CONLEY FROG & SWITCH CO.

Memphis, Tenn.

timore, has been appointed assistant general freight agent with headquarters as before. Mr. Wight was graduated in 1901 as a civil engineer at the Pennsylvania Military College, studied law at Yale for two years, and pursued this study in the law offices of the B. & O. He represented the United States on a mission to Liberia, and then engaged in newspaper work. He returned to the B. & O. in 1921 as freight representative and became foreign freight agent in 1923.

Willian L. Donaldson, general freight traffic agent of the Lehigh Valley with headquarters at New York, has been appointed assistant western traffic manager with headquarters at Chicago. Mr. Donaldson is succeeded by **Ira S. Auch.**

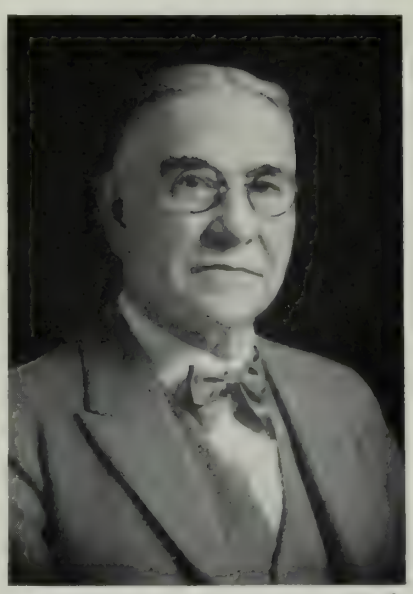
T. F. Bowes, commercial agent of the Illinois Central at Los Angeles, has retired from service because of ill health and will be succeeded by **A. A. Zastrow,** traveling freight and passenger agent.

Charles E. Rolfe, assistant general traffic manager, Delaware & Hudson, has been appointed general traffic manager with headquarters at Albany. **J. E. Roberts,** superintendent of transportation, will succeed Mr. Rolfe as assistant general traffic manager with headquarters at Albany.

Sam S. Butler, general freight traffic manager of the Frisco has been appointed general traffic manager in charge of freight and passenger departments which have been merged to solidify solicitation efforts into one large group. **John W. Nourse** becomes passenger traffic manager. He has been general passenger agent, which position has been abolished. The traffic department was divided into four large districts, each presided over by a traffic manager. **George F. Macgregor,** executive general agent at Kansas City, has been appointed traffic manager of the first district with jurisdiction over western Missouri, Kansas, Colorado, Minnesota, and western Iowa. **J. R. Coulter** has been named assistant traffic manager. **J. W. James,** executive general agent at Tulsa has been appointed in charge of Oklahoma and eastern Arkansas, the second district. **R. E.** Buchanan, traffic manager at Pensacola goes to Memphis as traffic manager of the third district including the Mississippi Valley territory, Mobile and New Orleans. **A. P. Matthews,** assistant general passenger agent at Memphis is his assistant. **D. F. McDonough,** executive general agent at Memphis is in charge of the fourth district comprising Alabama and the Southeast, with headquarters at Birmingham. His assistant is **J. E. Springer,** division passenger agent at Birmingham.

A. W. Foellger has been appointed assistant general passenger agent on the Michigan Central with headquarters at Chicago to succeed **J. M. Simpson,** deceased. **D. S. Mackie,** assistant general freight agent with headquarters at Chicago, has been appointed assistant freight traffic manager.

Everett D. Davis, general freight agent of the Buffalo, Rochester & Pittsburgh, has been appointed assistant freight traffic manager with headquarters at Rochester. **Webster H. Francis,** assistant general freight agent, succeeds



George Bristow

Mr. Davis. The headquarters of **William J. Sheridan,** general western freight agent, has been transferred to Buffalo. **Robert L. Yates** has been appointed soliciting freight agent at Buffalo.

The Pennsylvania announces that **H. J. Freeman,** freight claim agent at Philadelphia, has been appointed freight claim agent of the Long Island.

E. L. Mountfort, assistant freight traffic manager of the Gulf, Mobile & Northern at Chicago has been appointed freight traffic manager at Mobile to succeed **J. A. Jackson,** deceased. The position of assistant freight traffic manager at Chicago has been abolished.

H. J. Graham, general western freight agent of the Lackawanna has been appointed western traffic manager with headquarters at Chicago.

C. H. Morrill, assistant to the vice president of the Frisco at St. Louis, has been appointed traffic manager with headquarters at Los Angeles and San Francisco.

Mechanical

T. J. Stocks, machine shop foreman at Green Bay, Wis., of the Green Bay & Western, has been appointed superintendent of shops.

W. Y. Cherry, superintendent of motive power on the Long Island, has been appointed general superintendent of motive power of the New York zone of the Pennsylvania. **H. K. Le Sure,** master mechanic on the Pennsylvania, has been appointed master mechanic on the New York zone to have charge of the Long Island and the electrified lines of the New York division, with headquarters at New York.

R. A. Thurston has been appointed general foreman of the mechanical department at La Grande of the Union Pacific.

The Michigan Central announces that **C. W. Frey,** superintendent of shops at West Detroit, has been appointed master car builder at Detroit and will be succeeded by **James Bowen** at West Detroit.

Civil

R. R. Nace, superintendent of the Indianapolis division of the Pennsylvania, has been appointed chief engineer maintenance of way of the New York zone. **A. C. Watson,** chief engineer on the Long Island, with headquarters at Jamaica, has been appointed chief engineer of the New York zone of the Pennsylvania.

The New York Central announces that **J. G. Wise** has been appointed assistant terminal engineer with headquarters at New York. **E. E. Dietch** has been appointed assistant engineer, eastern district, with headquarters at New York. **J. M. Connolly** has been appointed assistant engineer, middle district, with headquarters at Albany, and **R. H. Kugler** has been appointed assistant engineer on the western district with headquarters at Buffalo.

R. I. Becksted has been appointed signal supervisor of the Canadian Pacific with headquarters at Montreal to succeed **D. M. Noell,** transferred.

J. L. Campbell, assistant to the chief engineer of the Southern Pacific, has been appointed acting chief engineer to succeed **George H. Hicks,** deceased.

Obituary

George Bristow, assistant general passenger agent, Chicago Great Western, died October 14 at Kansas City, aged 65, after a brief illness. Mr. Bristow was in the service of the Great Western 39 years. He started as a clerk in the general offices at Chicago.

B. J. Torbron, recently appointed general coal and ore agent of the New York Central with headquarters at Cleveland, died there October 19.

J. A. Spielman, assistant to the gen-

eral superintendent of the B. & O., died October 7 at Pittsburg, aged 73. He had been with the B. & O. for 48 years.

John M. Simpson, assistant genera' passenger agent of the Michigan Central, died at Chicago October 7. He had been with that road more than 40 years.

J. R. Mulroy, former general storekeeper of the Frisco and the Pullman Co., died October 7 at Chicago, aged 64.

George H. Hicks, chief engineer of the Northwestern Pacific, died at Berkeley October 21, aged 48. He had spent 26 years on the location, construction and maintenance of Pacific Coast railroads. Mr. Hicks entered the service of the engineering department of the Milwaukee in 1902 but left a year later to go to the Western Pacific as resident engineer in charge of sections of the construction in the Feather River Canyon and the Altamont Grade. Upon completion of the Western Pacific he entered the service of the Southern Pacific and was transferred to the Northwestern Pacific where he filled the positions of assistant engineer, assistant valuation engineer, principal assistant engineer, and valuation and property engineer. He was appointed chief engineer in 1924 and had charge of planning and constructing depots and improving track and roadbed.

George H. Hicks

John Adrian Jackson, freight traffic manager of the Gulf, Mobile & Northern, died at Mobile October 7. Mr. Jackson was born in Wilkes County, Ga., in 1863. He had been in railway service since 1876, starting as a messenger on the Louisiana & Nashville. He entered the service of the Mobile, Jackson & Kansas City as chief clerk in the freight department in 1905 and was promoted to freight traffic manager in 1926.

E. H. Barrett, assistant to the general manager of the Milwaukee, western lines, died at Butte, Sept. 28.

Charles H. McConnell, mechanical engineer on the Pittsburgh & Lake Erie with headquarters at Pittsburgh, died October 20 aged 49. He had been in the employ of that road for 27 years.

Supply Trade Notes

Fred A. Poor has been elected president of **Poor & Co.,** Chicago, recently organized to take over the P. & M. Co., Chicago; the P. & M. Co., Ltd., Montreal; P. & M. Co., Ltd., London; the Maintenance Equipment Co., Chicago; the Vermilion Malleable Iron Co., Hoopeston, Ill., and the Canton Forge & Axel Co., Canton, Ohio. The P.

JORDAN SPREADER
"Does the Work of an Army of Men"
SNOW PLOW ★ ICE CUTTER
UNIVERSALLY STANDARD
★ DITCHER ★
O. F. JORDAN COMPANY
WALTER J. RILEY, PRESIDENT
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Steel and Composite Cars

Completely rebuilding large numbers of steel cars in record time is an achievement that Ralston Steel Car Company has repeated time and time again.

This is possible only through our excellent facilities and well-balanced program, which, together with skilled workmen and competent engineers, keep the cars moving through the plant on regular schedule.

THE RALSTON PLANT is equipped to build New Cars, to Rebuild Old Cars, to Repair and to supply repair parts. All materials and work of the highest QUALITY and performed under expert Engineering Supervision.

RALSTON STEEL CAR CO.
COLUMBUS, OHIO

& M. Co., London, owns 25 per cent of the capital stock of the P. & M. companies of Australia, Italy and France. **Philip W. Moore** has been elected vice president of the new company; **Fred A. Preston**, vice president; **H. Lutkins**, secretary, and **H. C. Holloway**, treasurer.

The **Electro-Motive Co.**, Cleveland, has appointed **W. D. Otter** Pacific Coast representative with headquarters at San Francisco.

L. G. Sever has been appointed assistant to the president of the **Mt. Vernon Car Mfg. Co.**, Mt. Vernon, Ill.

P. H. Banks has been appointed traffic manager of the **Natural Rock Asphalt Corpn.**, Louisville, Ky.

The **Safety Car Heating & Lighting Co.** announces the appointment of **H. K. Williams** to manager of the equipment department, in charge of sales of axle lighting equipment, batteries and accessories. **L. Schepmoes**, manager of sales service department, New Haven, has been named manager of the fixture department in charge of sales of lighting fixtures, fans, etc., with headquarters at New Haven.

Harold C. Osman, secretary of the **Nugent Steel Castings Co.**, Chicago, in charge of sales for that company, has been appointed works manager.

The **Interstate Iron & Steel Co.** has appointed **L. C. Wilson**, formerly president of the Federal Malleable Co., to assistant to the president.

H. E. Chilcoat has been appointed

H. E. Chilcoat

manager of sales, air dump car division, of the **Koppel Industrial Car & Equipment Co.** Mr. Chilcoat was born in Obisonia, Pa. He began work as a machinist's helper for the Pennsylvania at Pittsburgh in 1900, serving successively as work inspector, gang foreman and foreman of the air brake department. He became traveling inspector of the Westinghouse Air Brake Co. in 1906, was transferred to the sales department and continued in sales work until 1918, when he became manager of the Clark Car Co. For two and a half years Mr. Chilcoat has been in consulting commercial engineering work.

J. A. Miller, Jr., general manager of sales, of the **Vanadium Corpn. of America**, has been named to direct the new office of that company in the Henry W. Oliver building, Pittsburgh.

The traffic fraternity has lost one of its outstanding figures with the promotion and transfer to other duties of **C. H. George**, general traffic manager of the **New Jersey Zinc Co.** and its subsidiaries. **W. A. Moore** succeeds Mr. George as general traffic manager. Mr. Moore is a brother of Donald O. Moore, general chairman of the Allegheny Regional Advisory Board and of Kenneth A. Moore, general chairman of the Great Lakes Advisory Board. **K. L. R. Baird** succeeds Mr. Moore as traffic manager.

R. J. Working, representative of the **Central Alloy Steel Corpn.**, Massillon, Ohio, has been appointed district sales manager, with headquarters at Cincinnati, to succeed **J. D. Dearth.**

The **Baker-Raulang Co., Cleveland**, has appointed the **Marquette Railway Supply Co.**, Chicago, as special railroad representative.

William McBride, president of the **Fort Pitt Spring & Mfg. Co.**, Pittsburgh, has resigned and sold his interests to Ralph H. Tate, Pittsburgh; Henry S. Sherman, Cleveland, and C. H. Collins, New York.

The **American Car & Foundry Co.** has placed **William H. Woodin, Jr.**, in charge of the newly created research department with the title of director of research. Mr. Woodin is the son of the head of the American Car & Foundry Co. and the American Locomotive Co. **A. H. Wobbe** has been named assistant director of research; **J. W. Steinmeyer**, research engineer, and **R. M. Allen**, research metallurgist.

The **Clinch-Mitchell Construction Co.**, 208 So. LaSalle street, Chicago, has been organized to succeed the **Flick Construction Co.** of the same address. The new company will have the same policy and officers as the former organization.

IMPROVED COLUMBIA
LOCK
NUTS
Made in S. A. E. Sizes
for use on MOTOR BUSES
Many manufacturers consider them standard on their gas and electric equipment.

COLUMBIA
LOCK
NUTS

A "SELF-LOCKING-NUT"
Standard sizes and dimensions. Easily applied without waste of time or injury to threads. CANNOT shake loose. FREIGHT CARS all over the country have them on. They have stood the test of years.

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BRIDGEPORT, CONN.

SPECIALISTS IN FORGED
Center Plates
Draw Bar Yokes
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Air Brake Pins
Brake Jaws
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and
Miscellaneous Forgings
Send us your specifications
Steel Car Forge Company
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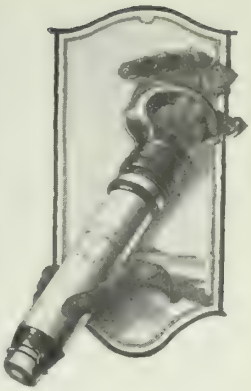
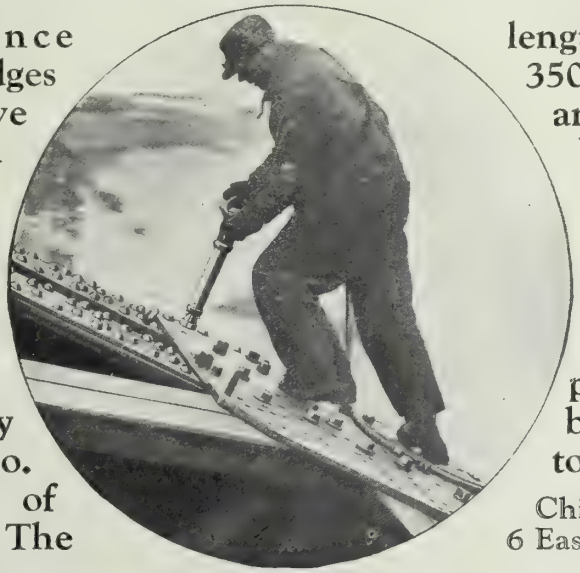
BOYER RIVETING HAMMERS



BOYER-RIVETED BRIDGES SAFEGUARD THE WORLD'S TRAFFIC

Because experience guides the wise, bridges the world over have been Boyer-riveted for the past 30 years. Today, the Hudson River Bridge under construction between New York City and Fort Lee, N. J., is being Boyer-riveted by McClintic-Marshall Co. About 100,000 tons of steel will be required. The



length of the single span, 3500 feet, is twice that of any other suspension bridge. It is planned to open this mammoth bridge to traffic in 1932 and Boyer Hammers, supplied with air from CP Compressors, are doing their bit to assure safety and to speed construction.

Chicago Pneumatic Tool Co.
6 East 44th St., New York

SOME FAMOUS BOYER-RIVETED BRIDGES

Delaware River Bridge, Philadelphia
St. Lawrence River Bridge, Quebec
Sydney Harbor Bridge, Australia
Bear Mountain Bridge, New York
Outerbridge Crossing Bridge, Staten Island
Queensboro Bridge, New York City
High Bridge, New York City
Norderelbe-Brucke Bridge, Germany
Hell Gate Bridge, New York City
Castleton Bridge, New York
Elizabeth-Howland Hook Bridge, Staten Island

"Riveting is Safe and Permanent"

Hudson River Bridge · · · · · Boyer-Riveted · · · · · Now Under Construction

P-300

IF
YOU
REALLY
WANT THE
GREATEST POSSIBLE

PROTECTION

TO
CARS and LADING
SPECIFY

SESSIONS-STANDARD
DRAFT GEAR

Standard-Coupler Co.
NEW YORK CHICAGO

LIFORNIA

Transportation

The Monthly Magazine of the Transportation Industry

CALIFORNIA STATE LIBRARY

A Rotary Plow on the Copper River Valley Railway in Alaska.

Christmas Day in the Diner

Vol. III December 1928 No. 6

A Hyatt equipped train on the New York, Westchester & Boston road. Closeup shows Hyatt Roller Bearing Journal Boxes as applied to Stilwell type of trucks used on these cars.

Another Hyatt User . . . REORDERS!

THE New York, Westchester & Boston Railway is one of more than sixty roads where Hyatt Roller Bearing Journal Boxes are in operation.

Last spring they equipped their first train with these efficient, time and power-saving bearings, and now have ordered additional Hyatt equipment . . . just as many other roads have done during the past year.

In our booklet, "What a Railroad Man Should Know About Anti-friction Journal Boxes," is contained the essence of Hyatt design and application. It explains concisely the advantages which are winning such overwhelming popularity for Hyatt Roller Bearings in railroad service.

If you do not have this brochure we will gladly send you a copy upon request.

HYATT ROLLER BEARING CO.
Newark Detroit Chicago Pittsburgh Oakland

HYATT
ROLLER BEARINGS
PRODUCT OF GENERAL MOTORS

Any Car is a Safer Car With Schaefer

Foundation Brake Details

Because All Schaefer Foundation Brake Details are—

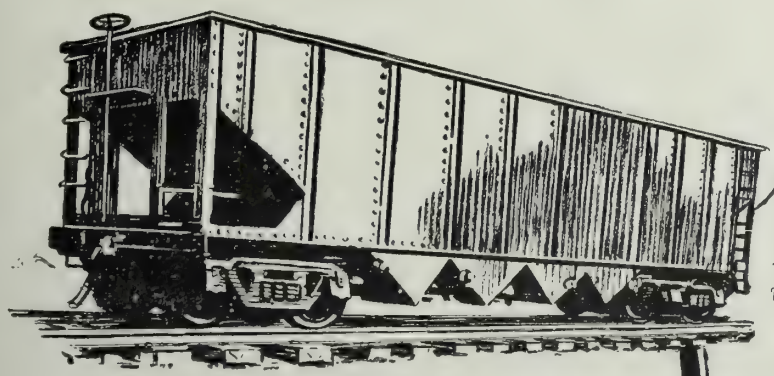
—drop forged from special wear-resisting steel

—*free from welds* and other points of inherent weakness

—designed for greater strength at points where other types of Brake Details fail

—easily applied and readily inspected

—built for the life of the car



Any Car is a Safer Car with Schaefer Foundation Brake Details

Schaefer Drop Forged Self-Locking Brake Hangers

Schaefer Drop Forged Loop Hangers

Schaefer Drop Forged Truck Lever Connections

Schaefer Drop Forged Body and Truck Levers

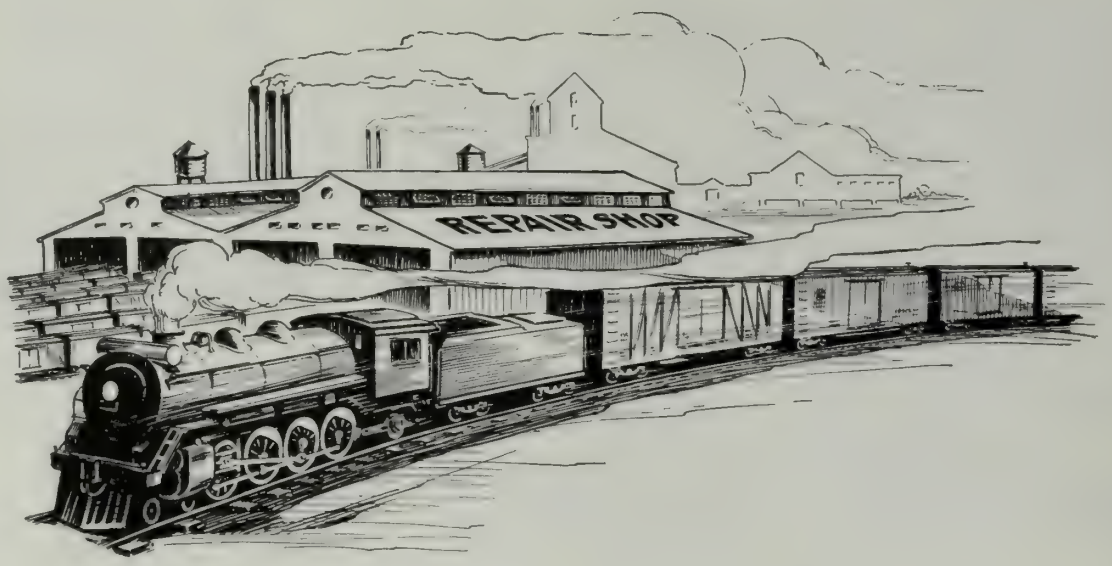
Schaefer Drop Forged Brake Rod Jaws

Write for Complete Data

SCHAEFER EQUIPMENT CO.

General Offices:

Oliver Bldg., Pittsburgh, Pa.

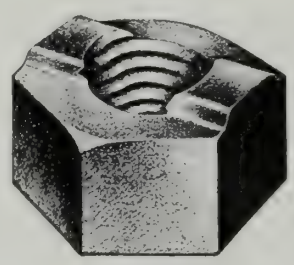


Keep Out!

THERE'S no "Keep Out!" sign on the repair shop. Into it go the cars—and with them an alarming percentage of the railroads' revenue.

Statistics show that twenty-six cents of the railroads' revenue dollar goes into purchases and stores, and that the car and locomotive departments use about one-third of the purchases.

So, when certain Class 1 roads reduce "bad order" equipment to less than 2%, save from 43% to 62% of former nut cost in building and overhauling locomotives, and 42% of cost of nuts used in building cars—by using Grip Nuts—it's easy to understand why Grip Nuts have been common standard on many of those roads for more than fifteen years.



Grip Nuts cut costs by doing just three things—and doing them supremely well: they *fit*, they *lock*, they *hold*.

GRIP NUT COMPANY

5917 South Western Avenue
CHICAGO, ILLINOIS

Transportation

(Reg. U. S. Patent Office)

The Monthly Magazine of the Transportation Industry

DECEMBER, 1928

VOLUME THREE NUMBER SIX

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AMONG THE MEN WHO DO THE WORK

LITTLE STORIES ABOUT BIG MEN

PUBLISHED BY

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THE ENGINEER

He is educated and trained to do the best he can with the equipment under his control.

He is responsible for the operation of the locomotive.

He controls Power, the factor governing train operation.

In the next locomotives you buy give him the benefit of

POWER

and he will DECREASE your operating COSTS

Lima Locomotive Works
Incorporated

Turkey and dressing, with cranberry sauce,
Potatoes and gravy, and all;
And plum pudding, too, will be ready for you
At the Christmas Day dining car call!

Christmas Day in the Diner

A Substitute for the Home Arranged by Railroads for Travelers on the Christians' Holiday

By Hal White and C. W. Geiger

THE MEANEST grouch in the world is a lonely fellow on Christmas Day. No one has any use for him under the very best circumstances, but in this festive season he has no place at all because, Washington Irving said, it is a time for hospitality in the home and charity in the heart. All the way up through the ages, in literature and history, you find good words for Christmas because, for one thing, it is the children's day, and anyone who would hurt children or wreck their faith in the beautiful fairy tale their mothers have taught them to believe would steal pennies from a newsboy. The children's faith in the reality of Christmas is one of the finest things in the world. Faith, you know, is the substance of things hoped for. It is the Christians' day, and the one great day of the year for many who are Christians without knowing it, a world holiday requiring no legislative enactment to insure its observance.

On Christmas Day all kinds of business cease their activity — all except railroads, and as these must go right on carrying people and goods from here to there, those in the operating department, which manages trains, take extra care to make it a day the travelers will remember.

Now, what can a railroad do to celebrate Christmas? How does it happen that busy men, burdened with the handling of property worth as many billions as they can induce the powers at Washington to admit, find time to think of the children whose parents, for many

Christmas Preparations in a Southern Pacific Dining Car Kitchen: Otto Reiss Supervising.

reasons, are compelled to take them journeying on such a day as this?

Well, for one thing, most of these men are fathers, and those that aren't would like to be, and being fathers or in a receptive mood they know, very naturally, that on Christmas Day children must eat. Moreover, they don't hanker for pork and beans and such things. They want the stuff their mothers have led them to expect, year after year, and if they don't get it they are going to ask embarrassing questions. They want a tree with trimmings on it and numerous mysterious boxes and packages in fanciful wrappings thereon and thereabouts.

The big men of the railroad world know all these things, better than most of the rate-lowering public suspects. They know all about children, thank the Lord, but no one on the pay roll knows so much about making them happy on a journey as do the dining car crews. These are the boys who make the Christmas real for little travelers. You'll see no grave or gloomy faces in the dining car kitchen. It is a great day for the cooks and waiters. It means extra work, extra patience, but smiles are just as frequent as if every passenger on the train was a stockholder looking for a chance to tip someone, a practice to which stockholders, it is said, are much given.

All Class 1 roads make special preparations for Christmas, but perhaps it is emphasized more particularly on the transcontinental lines carrying families certain to be far from home and friends when the great day dawns. All the way across the country, from the Atlantic to the Pacific, there are special menus. The cars are decorated merrily. Sometimes there are Christmas trees with things on them. Whether the first call for dinner finds the train festooned with icicles or gliding through orange groves, the traveler who goes forward to the diner enters a little world of warmth and light and good cheer, the chief ingredients of Christmas.

Dining car management is efficiency raised to the Nth power, plus culinary skill that asks no odds of anyone. The Christmas turkey which, on its way from its native haunts to the fulfillment of its mission in life, goes by way of the tiny kitchen in the diner justifies the flourish with which it is placed before the ultimate consumer. He has become the piece de resistance of a dinner for whose quality and serving no apologies are necessary.

This, as you all know, is a whale of a country and it is crossed and re-crossed, up and down, this way and that, by a perfectly astonishing number of railroads. There are so many, indeed—and we have such a downright distaste for statistics—that if we were to try to tell about all the things they do for folks at Christmas (as well as at other times, should anyone ask you), we should find ourselves in a fine pickle quicker than you could spell eisenbahnkraftwagenverkehr, which means bus. Some of the lines are so particular, too, and so sincerely proud of their arrangements that to name some and leave out the others would be like using a swear word in the Men's

Bible Class. But what are we to do about it?

Some certainly are outstanding. Take the Milwaukee, for instance, and we don't care whether you take it or not; that is to say, consider the Milwaukee. There'll be some celebration in the diners of that great railroad, come Christmas Day. Why? Just what is this road springing that any other road can't spring? Well, for one thing, ladees and gen'lmen, the Milwaukee is springing a Chef de Cuisine —pronounced sheff de quee-seen —this year, none other than the eminent George Rector. You have to hand it to the Milwaukee. Most railroads are satisfied with supervising chefs and a superintendent of dining cars, but the Milwaukee comes to the front with what we said a moment ago, and the Christmas things that Rector knows how to make are beyond the average comprehension.

Of course, you know George Rector. Surely not the author of those stories in the Thursday magazine? Not that Rector? Certainly. How come? Well, George Rector, (remember Rector's on Broadway, New York? Didn't you see the play, "The Girl From Rector's"?) just back from Europe with a lot of wonderful ideas about preparing marvelous things to eat, ideas he took over with him from this country, by the way, has taken charge of the Milwaukee dining car service, and has established a school to teach the cooks and waiters new ways of doing things with groceries and meat. We needn't say another word. A dinner we had long years ago in Rector's on Broadway, especially the check, will never fade from memory while sense remains. Rector'll give his clients—he never has "customers" — a Christmas dinner to be remembered long after the check has been forgotten.

And Here, Folks, Is George Rector, the Milwaukee's Chef de Cuisine, and the Smile That Won Broadway.

The New York Central diners, directed by John Smart, will have their customary corking good Christmas dinners. If you chance to be going his way John Smart will make you forget home and family for one meal — unless they're all with you. There is nothing finer anywhere, and it doesn't matter which train you ride. But this description, not built of superlatives, applies to all the lines westward from the Atlantic. Every man who has traveled beyond his own state knows this. He knows it much more emphatically if he has been in Europe.

And this starts you out of Chicago. We own none of the lines so we don't care which you use, but for this occasion we are telling about Christmas Day in a Santa Fe diner. The Christmas preparations made by this road through its famous Fred Harvey System, are typical of the best American lines. Every one of the Santa Fe's three score diners that will be in service on that day will be redolent of the Christmas atmosphere. Mirrors, plate glass and silver will reflect the green of holly wreaths at either end of the car. Now, about the feed.

Turkey, of course, savored with the spicy holiday red of the cranberry. Plum pudding, reminiscent of Noeltide in lands beyond the sea. Noeltide is just another way of saying Christmas. Oysters from

George Rector, Instructing His Dining Car Crews. In His Hand Is a Tomato, Something Different When George Directs Its Cooking.

the brisk waters of the eastern coast. Grape fruit and oranges from the sections that know snow only on their mountain tops. Here is a typical Fred Harvey Christmas bill:

Grape Fruit and Orange Supreme

Bisque of Oysters aux Croutons — Consomme

Radishes — Ripe Olives

Baked Fresh Mackerel, Portugaise

Cucumbers

Roast Young Turkey — Cranberry Sauce

Sweet Potatoes Glace — Cauliflower Hollandaise

Lettuce and Persimmon Salad — Camembert Cheese

Plum Pudding

Fresh Strawberry Ice Cream

Petits Fours

Coffee

A Fred Harvey crew is composed of from ten to fifteen men, depending on the size and type of the diner. There is a waiter to every section, that is, to every six persons. Some of the large cars have seven of these sections. There are four cooks, the steward, and sometimes a cashier. And there are the barber-baggageman and the buffet porter in the cafe car.

Many of these men are veterans in the service, with the Santa Fe from fifteen to twenty-five years. If your waiter wears a gold badge it means he is a 20 - year man.

But, two years or twenty, he is imbued with the spirit of service. The wishes of the guest are his rule and guide.

Baked Prunes, a Southern Pacific Delicacy.

And, although his Christmas is more often spent away from home than in it, his greeting to the Christmas guest in his car stamps him as a philosopher; wherever he is, wherever his car may be, is the best place in the world at that particular moment. And if swift, deft service can make the diner feel the same way, he is repaid.

The man away from home on Christmas, en route from somewhere to somewhere, is rather likely to be absorbed in his own contemplations, a business or professional man of large and pressing affairs who makes the most of the trip and gets through a lot of work in his compartment.

It isn't the easiest thing imaginable to make a child believe it is Christmas when he is riding through orange groves, with the car windows open, no snow in sight, and men sitting around in their shirt sleeves. But if this thought bobs up in a childish mind on a Southern Pacific train it certainly won't be because that company's dining car crews have neglected one idea in their efforts to overcome it. Allan Pollak, superintendent of this important department, has a way with him at Christmas time, and Otto Reiss, the supervising chef, knows how to handle his work or teach others to do it properly. They have about everything a human being could crave at Christmas time this side of the Eighteenth Amendment, also known as Rule G.

There'll be a real Christmas dinner on the Southern Pacific this year as usual. And not only will the

meal reflect the spirit of the day. Arrangements have been completed for the decoration of the dining cars with holly berries and wreaths. It will be the purpose of the stewards to make their diners as festive and seasonable as possible. As a foretaste of good things to come, here is the recipe for the plum pudding as arranged by Otto Reiss; it was served last year and proved such a hit that it took extra clerks to handle the letters requesting the directions. If you don't believe it just try the pudding. Here is the lay-out:

Take one-half pound each of bread, butter, brown sugar, raisins, currants, ground orange peel, citron, ground lemon peel; one-quarter cup of flour, one-half cup molasses, one-half pint milk, one egg, pinch of soda, brandy flavoring, one-half teaspoonful each of allspice and cinnamon and a pinch of nutmeg.

Mix the butter and sugar until creamy, moisten bread with milk and add to mixture. Add molasses, egg, flavoring and other dry ingredients. Fill into well-greased pudding molds, tie tightly and steam for two and one-half hours.

Believe It or Not, This Is Christmas Morning in a Southern Pacific Observation Car.

Otto doesn't confine his efforts to delicacies for Christmas dinners, however. People have to eat breakfast if they are normal. Prunes, for example. You think of boarding house days when they're mentioned, but not after you eat Southern Pacific specimens. Prunes, as doubtless you and your wife imagine, are to be stewed. Not in Otto's ward. He pops them into an oven and bakes them, and ever afterward you think life a beautiful thing. Otto's prunes are baked in glass containers and issued to ferry dining rooms and dining cars in sealed quart jars, fresh and appetizing. An average of 125 quarts of big baked prunes is the San Francisco ferry commissary's daily output.

Pies! You Could Sell Ice Machines in Alaska After Eating One.

And pies? Man! No mother ever turned out such crust, for mother never owned an electric oven to crisp the crust right through without burning. The largest of the pie ovens in the ferry commissary kitchen has a capacity of 1,500 pies daily. And never a bit of dried fruit goes into an apple pie. No matter how prices soar, only the finest of fresh apples are used, month in and month out.

Of course stories are told about folks in diners. Did you ever hear the one about the man and his wife on their first trip? The menu with its Frisco French puzzled them. Behind them stood the dignified waiter. The husband leaned toward his wife.

"They say," he whispered, "that this road is famous for its cuisine."

His wife laid down her menu with a sigh of relief.

"Then let's try some of that, John," she whispered.

The unfamiliar traveler and his wife would have been equally safe in trying the cuisine of any of the prominent American railroads today. And, if that cuisine is perfection itself on any and every day in the year, it gains, on the "eating holidays," Thanksgiving and Christmas, an added touch of festivity that makes of the dinner a rare occasion.

Few men, unless they be constantly awheel, ever outgrow the fascination which a train holds for them. And of all the cars on the train, the diner stands out as the most glamorous.

Here We See President Kurn of the Frisco System Examining Part of a Carload of Petitions Asking Congress to Regulate Motor Vehicles. Loyal Employes of the Road Did the Fine Work.

Frisco Employes Want Bus Regulation

PATRONS of Frisco Lines in the nine states served by that railway want regulation of bus and truck traffic now operating in direct competition with Frisco passenger and freight trains. That fact was proved Nov. 22 when the count was completed of the signatures of business men in the road's territory to a petition circulated by Frisco employes asking congress for a "just and fair" regulation of the automotive competition which is making deep inroads in the earnings of railway companies.

Thirty thousand signatures of business and professional men; farmers; employes of industries; state, county and city officials and other responsible persons, were affixed to more than 3,000 petitions which were assembled and counted in the general offices of the Frisco at St. Louis. In addition to these signatures, 12,000 Frisco employes within the jurisdiction of the 65 employe-clubs of that railway, signed a similar petition requesting congress to protect their jobs from this new competition on the part of "unregulated bus and truck companies, many of them irresponsible."

In announcing the results of the petitions, President J. M. Kurn said he was highly pleased with the splendid response on the part of employes and friends.

"The results," said he, "have been excellent in that we have a satisfying testimonial from business interests that they are in sympathy with our efforts to secure federal regulation that will place competition between the railroads and the buses on a fair basis. By affixing their signatures to this petition, these 30,000 friends and patrons of our railroad inform congress that they want a law which provides regulation of the buses and trucks, incorporating proper protection against financial irresponsibility, regular and dependable schedules, proper tariff, careful inspection of vehicles, physical examination of drivers, adequate taxation, restrictions on size, width, weight and speed of vehicles and other regulatory measures. The railroads already have all these regulations enforced upon them by the Interstate Commerce Commission, and we believe our competitors should be placed on an equal basis. That our belief is shared by the people who use our railroad is a matter of great satisfaction to the officers and employes of this company."

The petitions were distributed to Frisco employes three weeks ago. Only one request was made by the Frisco management to the employes circulating the petition. This was that only responsible persons should be asked to sign. Missouri headed the "friends and patrons' petitions, with 13,860 signatures; Oklahoma was second with 7,349; Arkansas third with 4,101, and Kansas fourth with 2,816. The larger cities on the Frisco were not heavily canvassed. The majority of signers were residents of the smaller cities and towns. On the "employes" petitions, Springfield, Mo., headquarters of the Frisco's operating activities, led the list with 2,830 signers.

Traffic Cops of the Air

At present the Chicago airport, with 70 to 80 planes taking-off and landing daily, is the only one using a real traffic cop—an employe of the airport, but none the less an official of importance. Eventually, in the opinion of many observers, the larger American airports may adopt a system of traffic direction similar to that in use at Croydon, London's busy air terminal.

Croydon has gone beyond the hand signals of the traffic officer. It has a system of lights which inform the pilot when he may go and when he may not. These lights are operated from a tower which gives the operator a full view of the surrounding territory. Planes landing and planes taking-off are directed by this traffic officer instead of the respective pilots of each trying to keep an eye on each other and guessing what the other is going to do.

The recipe for perpetual ignorance is: Be satisfied with your opinions and content with your knowledge.—Elbert Hubbard.

It Was No Fun Going to Congress A Hundred Years Ago

Some Members Now Use Airplanes

By Uthai Wilcox

This Is Said to Have Been the First Electric Railway in America, a Third-Rail Affair, From Baltimore to Hampden in 1885.

THERE was a time, and not so long ago either, when calling a session of congress meant a lot of trouble. It was trouble for the members who had to attend. It was a problem of getting to Washington. It was strictly a question of transportation.

Frequent comment on this fact is recorded in the debates and speeches. It was stated frequently that "traveling to Washington is the most laborious of congressmen's duties." The early sessions of congress were enlivened with complaints, moans and tales of woe. Representative Charles A. Wickliffe of Bardstown, Ky., and nine other members told of being upset on their way to the capital. "We were like a load of live hogs in a country wagon, uttering a squealing sound as the stage rolled into the gully," he told congress.

Such experiences make entertaining contrasts with the luxurious, speedy transportation enjoyed by senators and representatives now in congress, who might, if they told the truth, say that traveling to Washington is now their pleasantest duty. Before the nation could be crossed in 94 hours, a leisurely trip nowdays, there was a century of horseback riding, covered wagons, roundabout ship routes and slow locomotives.

The delegate from Washington territory, Major General Isaac I. Stevens, had to travel across the snow capped Rockies. It was necessary to swim beside his horse many times. His meals he obtained with his rifle and his fishing rod. When at last he reached the Mississippi he took a slow train the rest of the way.

It wasn't the distant western places alone that made traveling the legislator's most laborious duty. There were the men from the southern states and even from the East. Senator Gouveneur Morris of New York wrote in 1801 that "from Annapolis to Washington was one sea of mud so deep that the stage was stalled and stuck fast. It took ten hours to go 25 miles."

Another national legislator said "the road from Baltimore to Washington is so exceedingly bad that a carriage sometimes sinks so deep as to defy the utmost exertions of the strongest horse to draw it forward. Bridges built across creeks are perilous, being formed of a few loose boards that totter while a carriage passes over them. For miles the driver has to wind between great stones, logs and stumps."

Such handicaps made coach riding to Washington about as slow as walking. Twenty-five miles in 24 hours was the rate over Kentucky roads as late as 1819. To go from Richmond to Fredericksburg, Va., which is 69 miles, required two days in 1817. From Buffalo to New York, 475 miles, took 100 hours of actual travel in 1816. Such are the records of the members of congress who made the trips.

These legislators not only had slow traveling; they had exceedingly rough going, for very few coaches had springs in those days and the seats were of wood and rarely covered. Thomas Moore, the Irish poet, in telling of his trip to Washington, said that the "coach takes 12 passengers which generally consist of children, stinking laborers, and politicians smoking cigars." This was in 1804.

But even such companionship would have been welcomed by the congressmen who came from west

One of Herbert D. Stitt's Paintings of Early Days Along the Baltimore & Ohio.

of the Appalachian Mountains. The laborers and the politicians could have given necessary aid at the time of a mishap. David Crockett, representative from Tennessee, (1827-1831 and 1833-1835) recorded many interesting and some amusing experiences. About the time he served in congress there were bits of railroad track in many places. To leave Washington for home July 2, 1835, Crockett went by stage to Baltimore. From Baltimore he sailed down Chesapeake Bay to "a place where we boarded the railroad cars. This was a clean new sight to me; about a dozen big stages hung onto one machine and it aimed to start up a hill," Crockett wrote. "After a good deal of fuss, we moved slowly off, the engine wheezing as if she had the tizzick. By and by we began to take short breaths and away we went with a blue streak after us. The whole distance was 17 miles and it was run in 55 minutes."

A steamboat took Crockett from Delaware City to Philadelphia. The "fast stage" carried him to Pittsburgh in four days. Here he boarded an Ohio River boat. Afer changing boats at Cincinnati and Louisville he landed at Mills Point, Tenn. His son met him there with a sulky in which they drove 35 miles to the Crockett home.

Maintenance of schedules didn't mean much to railways or steamboats in those days. Sometimes rain delayed the trains while a steamer captain might "take the notion" to meet the request of a friend. Crockett told how Captain Stone held his boat and its other passengers at Pittsburgh one day after starting time to wait for the representatives. Then the Wheeling, Ohio, city fathers asked the captain to steam back up the river several miles and enter the port again, so they might fire a salute to Crockett. The captain promptly acquiesced.

With various schedules and methods of getting over the ground it took Crockett 20 days to go from Washington to his home. One can now go from the capital to Tokio, Japan, in about that time.

The first representatives from California had adventurous times in reaching the nation's capital. John C. Fremont and William M. Gwin almost fought their way back to Washington in order to represent their own state in 1850. That was 78 years ago. Indians were on the warpath, cholera was scourging the "Great American Desert," so the supposedly easier Panama route was taken. Senator Fremont's wife was not well and his daughter was still young. They left San Francisco, January 1, 1850. "Getting to and from steamers in those days of wharfless Pacific ports was dangerous," Mrs. Fremont related. "At San Francisco we had to row to the steamer. At Mazatlan, Mexico, the first stop, sailors, after rowing passengers near land, jumped into the water and laid their oars to make a compact bridge from boat to shore.

"Each of us took cold from an imprudent change of dress at Mazatlan. Fevers soon came on. When we reached Panama, I was too exhausted to make the land crossing on mule back. Senator Fremont was crippled. The chilling he received at Mazatlan brought on rheumatic fever in one leg, which had been frost-bitten the winter before. We were carried down the gangplank and taken to the house of Mr. Stephans, one of the supervisors of the Panama railroad construction. Four weeks we lay there. The steamer which left East Panama for New York, February 1, sailed without us. My little girl's fever became worse and her splendid hair was cut close. To get me across the isthmus without jarring, the captain of a man-of-war then in the harbor, prepared a palanquin. This was a ship's cot, swung to two poles, with a light awning and curtains over a frame. At Gorgena we heard of the recent murder of 13 persons, a whole party, by the banditti. This made us decide to boat down the river. After two days and a night of moving slowly down this stream we reached Portobello and boarded a New York-bound steamer. I was lashed to a sofa in the main cabin to keep from rolling off, for it was now March and the boat rolled and pitched tremendously. Thin and haggard, we docked at New York City in mid-March, 75 days after leaving San Francisco!"

General Fremont's successor who was fearful of the long trip because of his wife's delicate health, left his family at home. Senator John F. Weller said in a speech in the senate, "I can have no correspondence with my family

Herbert Stitt Illustrates One of the Most Colorful of the Baltimore & Ohio Scenes Wherein the Old Locomotive, Atlas, Meets the Stage and Prairie Wagons at Old Fredericktown, Maryland, 1839.

short of a month." He was lamenting the lack of telegraph and fast mail service between the capital and the Pacific Coast. Fast sailing ships, the fastest known, that went around the Horn, took five months. It was not until May 10, 1869, that the east and the west were joined by rails.

But "it took the first transcontinental locomotives nine days to go from San Francisco to Chicago," said Representative Charles F. Curry, of California who, more than 50 years ago made the trip, and from "Chicago to Washington took three more days," he added. "The trains had neither sleeping nor dining cars. At night passengers lay on boards placed over seats, or rested heads against windowpanes. Those who did not bring food for several days had to snatch meals at stations where the train stopped. Seats were not upholstered."

Senator Francis E. Warren, of Cheyenne, who went to the Senate 35 years ago, before any other present senator was there, said, "In 1890 it took me four days and nights to come from Cheyenne to Washington. This year I came in two days and two nights. Then only one or two trains reached Cheyenne every day, now eight or nine leave and arrive daily."

But congressional transportation is still improving for Representative Roy G. Fitzgerald flies to his congressional duties. He breakfasts in Dayton, Ohio, his home, then flies 500 miles to Washington in three hours and eight minutes and lunches in the capitol restaurant. His secretary, Lieut. F. H. Rossiter, also pilots a plane to Washington.

The treasury of this nation has helped to pay for these long trips from the early days to the present time, but in a disproportionate manner. When the trip from Philadelphia to Washington cost congressmen $500 (1800-1805) they were allowed not over $50, or six dollars for each 20 miles from their place of residence to the seat of congress by the most usual road.

Now congressmen receive 20 cents for every mile traveled, and are allowed mileage for one round trip for a session. The total transportation bill has averaged $170,000 a year for the last decade. The largest single bill paid last session was $2,119.60, and that was to William P. Jarrett, Hawaii's delegate. The smallest was $8 to R. Walton Moore, of Fairfax, Va. The largest to a voting member was to John E. Baker, of Alturas, Cal., $1,453.20.

The talent of success is nothing more than doing what you can do well, and doing well whatever you do without a thought of fame. If it comes at all it will come because it is deserved, not because it is sought after.—Longfellow.

Containers, and Lower Rail Revenues

A LETTER of more than ordinary interest and importance is published herewith, in smaller type than appears usually in these columns because it is desired to print the entire letter. The writer is a western railroad official of very high standing whose name is withheld in order to save him from time-wasting and profitless discussions. It is only fair to other interests, however, to say that the system to which he takes exception because it reduces his revenues and increases those of companies not subject to Interstate Commerce Commission rules and regulations has been used by the New York Central and is now being adopted by other lines. The article under discussion was submitted to two railroad officials before printing:

I have read with a great deal of interest the article on containers printed in your November issue, but wonder where the data and information came from. Whoever gave you the information failed to say that the rates on freight carried in containers are reduced to such an extent that it is very disturbing to our whole western situation.

Assuming that on the average the freight that would be shipped under the arrangement proposed would equal second class, and that the average shipment would consist of two containers, each containing 6,000 pounds, the resulting revenue thereon from the proposed rates would be as shown in the following tabulation with the present revenue on same weight:

From St. Louis to	Proposed	Present	Difference Proposed Under Present
Kansas City	$ 45.00	$ 93.60	$ 48.00
Omaha	60.80	93.60	32.80
Wichita	101.00	166.20	65.20
Denver	163.80	231.60	67.80
	$371.20	$585.00	$213.80

The "present revenue" in the foregoing tabulation exceeds the "proposed revenue" by approximately 57½ per cent and if there be added to the present revenue 15 per cent to compensate for the weight loss from disuse of packages in accordance with classification requirements, it will be seen that the proposed basis contemplates a revenue loss of 81 per cent on the kind of freight we understand to be particularly involved.

Our class rates case is now before the Interstate Commerce Commission. Because of a vigorous protest from the western roads and shippers we succeeded in having the commission suspend the operation of the container tariff on the Missouri Pacific. If the container is an economy to the shippers, and I believe it is, there is no reason why we should cut our rates in addition to affording them this convenience. The railroad must pay four cents per loaded container car mile and two cents per empty container car mile. As you know, we pay only two cents a mile on refrigerators and 1½ cents on oil tanks.

It seems to me, from impressions I have gained, that somebody in the East must have a personal interest in the container corporation. The big forwarding company here has been strongly behind the project, naturally, because it will enable that company to enlarge its business at the expense of the railroads. Such concerns have the advantage of us because they are not subject to any Interstate Commerce Commission rules and regulations. They can make any rate they wish on less than carload freight when forwarded in carload lots. This they are doing now, but the container will enable them to go a step further in this direction.

Don't you think it would be well to look into this situation a little further, in view of what I have said? You might be able to correct some erroneous impressions people have on this subject.

Changing Traffic Problems

By Arthur Larson

The city council met in 1859. A. Mann, public speaker, arose and addressed the council:

"The horse and buggy problem must be solved. People crossing the streets are endangered by reckless driving. I move a fine of $1 be assessed against reckless driving."

The city council met in 1878. B. Mann, public speaker, arose and addressed the council:

"The velocipede nuisance is intolerable. People crossing the streets are endangered. I move a fine of $2 be assessed against reckless driving."

The city council met in 1898. C. Mann, public speaker, arose and addressed the council:

"The bicycle menace is unthinkable. People crossing the streets are endangered. I move a fine of $2.50 be assessed against reckless riding."

The city council met in 1928. D. Mann, director of public relations, arose and addressed the council:

"The automobile threatens to wipe out the American home. People crossing the streets are endangered. I move a fine of $15 be assessed for any violation of the motor code."

The city council will meet in 1948. E. Mann, radio broadcaster of airway traffic rules, will arise and address the council:

"After taking a complete tour around the world and investigating airway line problems I have come to the conclusion that people who walk and cross streets should be fined $100. In no other country in the world but ours do people walk any more. People landing in airplanes are not safe; their lives are endangered. They might strike some person who is walking —just think! The airplane would be smashed! We must wipe out the walker."

Faith Is the Substance

It is to be hoped that the commission in future cases will place as great emphasis upon those provisions of the Hock-Smith resolution which require the adequate maintenance of transportation as they now seem to place on the clause which requires the lowest possible rates, so that the carriers may go forward in the coming years as they have in the last seven years, with expenditures of money looking to the adequate maintenance of their property, the acquisition of new and more equipment and the construction of additions and betterments, all of which are dedicated to the service of the people.—Fred W. Sargent, President C. & N. W. Ry.

A service rendered is an opportunity improved.—Christian Business.

Truck Competition Not So Keen?

Figures Seem to Show Something

By George K. McCabe

Yale University, Department of Economics

FIGURES, estimates, statistics, seem to indicate that railroads have passed through the worst phase of automotive competition. If we are to place any confidence in figures, and there certainly seems to be reason for it in this instance, no railroad executive or stockholder need any longer sink deep in the Slough of Despond when some Gloomy Gus rises to remark that the railroads are through, or "the auto is killing the railroads."

If doubt still lives in those who do not like to be convinced it should die in the presence of the 7 per cent estimated decrease in passenger automobile registrations for 1927 as compared with 1926. Not only were fewer passenger cars licensed last year, but the production was the lowest in the last five years. Fewer buses were built; and truck making was not particularly a cheerful business. These figures are compiled, not by henchmen of the rails but by the impartial Standard Statistics Company of New York.

Apparently the motor truck is waging a losing fight for the freight business. The monthly production of trucks has fallen from 44,000 in 1927 to 38,000 this year. Meanwhile exports of these vehicles have increased so much that one-quarter of all the machines manufactured in the United States are shipped out. The net result of comparing the figures bearing on this problem is this: the present production schedule of the truck manufacturers is too low to maintain the number of trucks on the road today. In other words the railroad companies can expect lessening competition on account of the fewer trucks in operation. This should hearten the freight agent skirmishing for the short haul business, as well as the receivers of our poor relations, the short line railroads.

The final conclusion on truck competition is that in 1928 about 30,000 fewer of these motor vehicles were in operation, and about 160,000 fewer in 1929, according to present estimates.

It is worth noticing in this connection that the L. C. L. business constitutes only 3½ per cent of the total tonnage hauled by the railroads. Of course, this business carries a profitable rate, and its importance should not be underestimated. The invasion of the L. C. L. field by the motor truck shows up very clearly in the actual decline in 1926 of one million tons of this business since 1914. During this period the total tonage of all kinds of freight has increased about one-third. Besides, there has been a tendency toward longer hauls; so the figures mean a real increase in the railroad freight business of more than 35 per cent.

But, let not the wandering tribe of freight solicitors take on a smug and satisfied air because of this showing. Since 1914 population, production and income of the country have risen by about 40 per cent, so the railroads may be said only to have held their own, because the increase in their freight traffic only equals the general increase in the material welfare of the people. Furthermore, the railroad executives that minimize the importance of declining receipts by pointing to rising net earnings are living in the well known and fully rented fool's paradise. Just because some expenditures, such as the payroll, are almost automatically reduced as the volume of traffic declines no one would be so crass as to state that any decline in receipts can be neutralized by such means. The remarkable improvements in operating efficiency are not sufficient to maintain the net revenue for long in the face of a persistent falling off in gross

AS AN ECONOMIST SEES IT

THE STEAM railroad freight business has been well maintained. Freight revenues show an expansion about equal to that of the country as a whole.

Motor truck competition probably will be less severe in the future.

The railroads are taking steps to neutralize the effect of the automobile and bus on their through passenger business.

Declining gross revenues are dangerous because a sympathetic decline in net can be stalled off for only a short time.

Investors are strong believers in the railroads' future. This may be judged from the fact that high grade rail bonds slipped off only 4½ points in the recent collapse of the bond market, while public utility bonds of the same grade fell a full five points. The Wall Street expression "Buy rails for the long pull" might better be phrased "Buy long pull rails."

receipts. Taxes tend upward, track elevation impends, automatic train control is here, equipment good for ten years' service is declared obsolete; floods, earthquakes and rate cuts cannot be insured against. Careful management and a sharp pruning knife may stall off the day of declining net available for dividends, but the only sure preventive is fuller use of the existing plant, and this is possible only by expansion in traffic.

Factual support for this commonplace contention is afforded by the recent experience of the electric railways. A score of well managed progressive companies, like the New York State railways, have not been able to maintain their return on invested capital when up against declining gross revenues. Even the miracle man, Henry Ford, has been unable to prevent the net after rents of the D. T. & I. from sliding off one million dollars in the last four years as the gross receipts dwindled to the extent of 1½ millions.

An examination of the net after rents available for the payment of interest and dividends of the few steam railroads that have been affected for the last four years with an annual decline in gross revenue shows that a drop in gross of $100 is followed by a drop of $30 to $50 in the net revenue.

A greatly under-estimated part of the gross receipts of nearly all railroad companies is the passenger revenue. In fact, in many cases a notable increase in freight revenue has been more than offset by loss of passenger business. The result is lower gross receipts and the inevitably lower return of capital investment. The reduced passenger patronage has become progressively worse for many roads. Up to 1926 the passenger revenue shrinkage in general was from 3 per cent to 5 per cent a year; since 1926 ticket sales have declined 7 per cent to 20 per cent. Part of this poor showing is due to the transfer of local business to bus lines operated by subsidiary companies whose receipts are not included in those of the parent company. However, this lost business may be explained, the effect is not encouraging. The cause usually assigned in company reports, "increasing use of the private automobile," is inadequate explanation because the electric street and interurban railways show an annual decline of only about 1 per cent. Indeed, the number of passengers carried in their cars and buses was about the same last year, 783 millions, as for 1924, when it was 785 millions. Surely no one would deny that the traction companies have faced automobile competition as severe as the railroads have encountered.

The leading steam passenger roads already have begun to improve their equipment. Notice the newly equipped trains of the B. & O., Wabash, Alton, C. M. S. P. & P.; to shorten schedules; to reduce the price of first class passenger accommodation by excursions and the introduction of chair car coaches on formerly all-Pullman trains. The Pennsylvania has recently done this, and the New York Central announces a New York to Buffalo observation chair

WHAT THE RECORDS SHOW ABOUT TRUCKS

	Trucks Registered	Trucks Produced	Trucks Exported	Trucks Increase	Trucks Scrapped
1926	2,765,000	500,000	50,000	450,000	350,000
1927	2,865,000*	455,000	85,000	370,000	400,000
1928	2,835,000*	335,000*	85,000*	250,000*	420,000*
1929	2,675,000*				

*Estimated.

—Internat'l Newsreel.

Proposed Type of Elevated Structure to Relieve Traffic Congestion in New York City. Plans for a Similar Structure Have Been Approved for Building Along North River Beginning at 59th Street.

—Internat'l Newsreel.

Artist's Drawing of the First Section of the Proposed West Side Truck and Automobile Highway; From Plans Approved by the Supervisors in New York.

car train at day coach fares. The Illinois Traction Co., Indiana Service Corp. and the Louisville-Indianapolis Interstate Railway are only a few of the electric railways that have experimented successfully in this direction. Tours escorted by the Burlington have been a great success. Such progressive departures from traditional methods of handling passenger traffic ought to save at least the long distance business from the decline that has just begun to affect this part of the business.

Other favorable factors in the passenger department are the decline in the number of passenger automobiles registered last year, and the tendency to put the cost of roads on the users. The gas tax rose from a levy of one or two cents a gallon to four or five cents in 15 states last year. This is a good indication of this trend. The New Jersey legislature has been considering a bill to establish a toll road. Toll bridges and tunnels, many operated by private enterprise, have become common.

You Can't Keep Them Out

By Katherine Provost

If things keep on as they seem to be going right now it may not be long before a man will have to give his seat to a woman in the street car. And be mighty sweet about it, too. They are into everything nowdays, all kinds of business, politics, aviation, education —there are nearly 40 women presidents of colleges in this country—one or two women railroad presidents, any number of women heads of big businesses, and sometimes, if you go early enough, you'll find one at home.

Up in Idaho, where the big potatoes grow, there's a woman owner and manager of motor stage lines covering a daily schedule of 2700 miles with 32 or 35 big buses scooting around over the map every hour of the 24. Mrs. Emma Coldiron is her name. From Twin Falls, Idaho, to Spokane, Wash., her buses are seen, and they seem to be doing a pretty good business, too.

Mrs. Coldiron wasn't particularly trained for the stage business. "I don't believe," said she, "that I had any special qualifications for anything. Fifteen years ago my husband and I owned a small confectionery store in Hoquiam, Wash. I was dissatisfied. I realized we were getting nowhere, just about breaking even. I began

casting about for something bigger, something more remunerative than candy. One day a lumber camp was opened four miles from Hoquiam. We bought two second-hand Ford cars, and started a 'bus' service to that camp. It paid. In the spring we bought two more cars and extended our lines to Pacific Beach. In 1921 we operated two more buses from Hoquiam to Aberdeen. It was getting to be a very good business.

"Then I heard of a line out of Walla Walla, that was about defunct. I investigated and was certain it should be paying good returns. I bought it, and we moved to Walla Walla. I improved the service and went out after the business, passenger and freight. It responded at once. The freight and express business outgrew my expectations so quickly that I sold it and confined myself to enlarging and improving the passenger service."

Holding that the best is none too good for her lines, Mrs. Coldiron has bought the finest equipment made for her kind of business, and to this added an efficiency and economy in management that is piling up the profits. Extensions are being made, new connections arranged, and the bus service of the Northwest amalgamated in a manner that is popularizing that form of travel. The "Blue Mountain Lines" she has named them in the west part of the territory, and the "Blue Line" for the stages that operate between Boise and Twin Falls and ten intermediate points. The "Blue Mountain" line connects with the "Columbia Gorge" line to Portland. Tickets are now sold from any point on these lines straight through to New York or to any intermediate points, as well as to towns on the Pacific Coast and through the Southwest.

How They Travel Now

A record is kept every day now showing the kind of transportation used by arrivals at the principal hotel in Los Angeles. One day's record is said to be typical. It showed that of 138 arrivals, 90 came by train; 45 by automobile; one by plane and only two guests were local.

Ask Mr. Foster

By C. W. Geiger and M. N. Tucker

Two things you can get for nothing almost anywhere: Advice and information. The first you may use or disregard, but the second is pretty likely to be valuable. Usually, too, you get it with a smile, or at least without any undue amount of grouchiness. Some information bureaus are known all over the world, and in a very large degree have become international institutions. Ordinarily you see nothing to sell in these places. You do see several well-dressed clerks, smiling and eager to help you. Obviously, someone has to pay them for their important services. But this isn't a matter about which you need to bother your head. You don't pay, and such persons as they who serve you and try to answer some of your perfectly absurd and unreasonable inquiries in the Ask Mr. Foster Bureaus, for instance, are not the kind you would think of tipping, even if you are not a tight-wad determined to do your part in putting down this iniquitous practice.

When air transport for passengers began to operate the public was pretty well confused. In the early days, when railroad passenger trains first operated, people didn't have much fuss in learning where to get tickets and reservations. For one thing, the travelers knew there was only one place to find tickets, naturally, and this was somewhere down near the railroad tracks. It didn't take long to learn this lesson.

But when airplanes came along there was some valid excuse for a man's not knowing where to go, where to find the plane, what to ask for, which clothes to wear, and all that kind of thing. And this was where the Ask Mr. Foster people became more than ever the friends of the eager, air-minded sky tourists. To be fitted for their new jobs they had to study the air lines. They had to go over them. They had much traveling to do because they would be called upon to answer questions about five or more air lines flying from one place to another on the Pacific Coast. In addition to this the clerks must keep up on railroad information—and this is where the long-established, authorized information bureaus get their money. The transportation companies, steam, electric, automotive and air put up the wages, and a pretty fine investment it has proved to be. Sometimes you get out of temper because a brakeman or a red cap can't tell you the mayor's name or the cross street where you are to leave the bus in order to find some point of interest, but you're unreasonable. If you want service, the real, intelligent kind, go to a specialist who studies that particular thing, and you'll get the right results.

The clerks in the Ask Mr. Foster offices do many things for the public, and smile in doing them. They make reservations on all the established air lines, the Boeing Air Transport, the Pacific Air Transport, West Coast Air Transport, the Western Air Express, and the Maddux Air Lines. The Beacon Airway Co. is about to be added to this list for passenger service. The information bureau also arranges attractive displays in store windows and in the big hotels, drawing attention to scenic points everyone should see; they do some advertising, too, and distribute tons of literature. You can see these displays in all the big cities from Washington and New York to the Pacific Coast.

The blowhards and the blusterers wear themselves out. The fellows who are always demanding their rights and defending their honor and maintaining their dignity have not time to do very much else.—Canadian Onward.

One the Fleet of Fine Buses Operated Out of Omaha by the Interstate Transit Lines.

Where Passenger Traffic Is Going Now

By Charles P. Rodman

FROM ONE lone 14-passenger bus in 1923 to 36 buses traveling 5,557 a day and carrying 40,000 passengers every month has been the growth of the Interstate Transit Lines under the management of R. J. Walsh of Omaha. Mr. Walsh is the president of the company as well as the principal owner. All his cash and all his friends would lend him was put into the enterprise and one bus with a capacity of 14 passengers was bought. The line was opened between Omaha and Nebraska City, about 55 miles. The first few trips were rather disheartening for the promoter, but advertising and personal talks soon made the people believe they could travel as cheaply by bus as by train and have as good accommodations; besides they would take a different route and see different parts of the territory.

The first trip was made in March, 1923. Before the year had ended two more passenger carrying buses were in service. At the end of five years Mr. Walsh had 36 buses, many of them carrying 30 passengers, in operation out of Omaha. The shortest route at present is what is known as the Omaha-Fremont run, about forty-five miles, while the longest is the Omaha-Fairmont, Minn., run, a distance of 255 miles. The daily mileage made is 5,557 miles. The records for June, 1928, showed 40,000 people had been carried by the cars of the Interstate Transit Lines.

The routings at present are as follows: Omaha to Lincoln, eight trains daily; Omaha to Fremont, nine trains daily; Omaha to Sioux City, four trains daily; Omaha to Kansas City, three trains daily; Omaha to Fairmont, Minn., two trains daily; Omaha to Wahoo, two trains each day; Fremont to Lincoln, three trains daily; Fremont to Norfolk, four trains daily; Fremont to Dodge, twice each day; Omaha to Shenandoah, Iowa, three times a day.

In addition to the lines named the Interstate is affiliated with over 20 other local lines in Nebraska and Iowa so that direct connections are made by the buses of the Omaha lines with other lines, thus increasing the actual working mileage of the Interstate by over 100 per cent. Passenger-carrying buses in Nebraska are subject to the authority of the state railway commission. Under the rules laid down by the state is one which compels all passenger buses to be bonded for from $10,000 to $60,000 for each bus. This is to provide for compensation to passengers who might in any way receive injuries while traveling in an Interstate vehicle. Regular routes must be covered and schedules maintained. The transportation manager must submit his proposed route and schedule to the commission before he does any business and receive the proper endorsements before turning a wheel. All proposed changes in running time must also be sanctioned by the commission before being put into effect.

The regular charges in Nebraska per passenger mile is three cents by bus and three and six-tenths by railway. Thus we see the bus has a slight advantage in charges. At present all buses of the Interstate are routed at a speed of 25 miles an hour. This may be increased to as high as 35 miles an hour but not beyond that. There is a state law that fixes the maximum speed for motor vehicles at 35 miles and fixes penalties for all excess speed.

All routings of the Interstate lines are over hard surfaced road,

Wide World Photos.

This Is the First Motor Sleeping Coach Ever Run in England. The Albatross Roadways Ltd., Carries 12 Passengers in It Between London and Liverpool.

either brick or cement paving and gravel. No attempt has ever been made to establish a route over dirt roads as Mr. Walsh believes the cost would be prohibitive. Then the fact of maintaining a regular set schedule under those conditions does not appeal to any bus man. He is prepared, however, to establish a route over any paved line of road in the state just as soon as the people desire it and will give it the proper patronage.

It has been said the regular bus charge in Nebraska is three cents a mile. This is not compulsory but is done to attract travel to the bus lines as compared with the railroad rate of three and six-tenths cents a mile. Then again Walsh has found the bus will make a good profit at this rate. Careful checking has shown the cost of operation by the mile for the Interstate Transit Lines to be 22 cents. This includes depreciation, gas, oils, insurance and driver's wages. All vehicles are checked off at the end of three years and the mileage charge is sufficient to allow this to be done and still maintain the income at a point which permits the investor to receive regular dividends.

The Interstate Transit Lines have a garage in Omaha that covvers a space 130 by 130 ft. Here are provided housing facilities, repair shops and the general offices of the company. In addition to this a passenger depot is maintained in Omaha as well as at Lincoln, Fremont, Sioux City and Norfolk. The employes July 1, 1928, were seven in depots, five in the office, 37 drivers and 13 in the garage and shop, a total of 62.

The buses of the Interstate Transit Lines are a bright blue for the body with a clear white trim. All cars are painted frequently, Mr. Walsh believing this one of the best advertisements for business. Other publicity used is the regularly published schedules. He also posts large cards where they will be noticed by the public. The theaters of Omaha also cooperate with a huge card announcing some fine play or picture, the announcement carrying a few lines saying you can take the Interstate bus for the city at a certain time, see the show and return home by a certain bus. This has aided in increasing the number of passengers carried.

The passenger bus operators of Nebraska have an organization with a 90 per cent membership. R. J. Walsh of Omaha, president of the Interstate Transit Lines, is the president. E. J. Delahan of Beatrice, Neb., is the state secretary.

—Wide World Photo.

The English Photographer Says These New-Style Coaches Operate Direct From London to Nice, but We Just Don't Believe It.

Editorial Comment

It Won't Be Long Now

RAILROADS should not devise schemes to overcome the decline in passenger traffic. If they do it may be necessary to ask congress for another law. Any way this was the opinion contained in a report adopted November 16 by the National Association of Railroad and Utilities Commissioners at New Orleans.

Can you imagine it? Frank Morgan of Alabama—where Senator Heflin came from—wrote the paragraph and reported it as described elsewhere in this issue. The railroads, he said, are announcing such low excursion rates—as the law, for a wonder, permits, them to do, that the business of motor bus companies is being seriously affected. Mr. Morgan neglected to say a word, however, about how the low rates of the buses had seriously affected the railroads. If excursion rates continue to be announced, he said, it may be necessary to consider laws to forbid it. If this report was accurately described, which we have no reason to doubt, Mr. Morgan has contributed the outstanding example for the year of regulation gone mad.

Christmas in the Dining Cars

The railroads are responsible for the safety of a good many children in the course of a year. Unaccompanied, sometimes, they travel across the entire continent watched carefully by the members of the crew, many of whom have children at home. Doubtless, too, they answer a good many million questions put to them by these inquisitive little travelers.

As railroads are operated by family men it is not at all astonishing to learn about the extraordinary programs they prepare for children who chance to be passengers on Christmas Day. It never was intended that families should travel at that particular time, but the best laid plans sometimes go wrong. To explain such things to children is a waste of breath. You don't get anywhere with your talk, and they suspect your veracity. They want Christmas doings, they feel cheated if deprived of them, and moreover, the memory of a bleak day without such festivities will never die.

Christmas Day in the diners—Christmas morning—will never be forgotten by children who were there, an especially wonderful day because quite unexpected in most cases. It gives one a new and stronger faith in men when we read about these railroad plans, weeks in preparation, to make it a joyous season for the youngsters. What these great corporations do is described in the leading article this month. It will warm your heart. It will make you sorry for the head of one of the country's greatest industries, who died the other day, known everywhere as "the man who never played." It will make you do really human, generous things to astonish your friends and relatives. It will confirm in your mind the belief that any man, be he in the president's chair or in the ashpit, is a pretty mean kind of person if he doesn't like children, if he isn't eager to help along their happiness on Christmas Day. Of course there are few such men anywhere and none in the dining car service.

Worth Thinking Over

Within the last few weeks several great newspapers in eastern states have commented on the dwindling passenger revenues of railroads. Airplanes, the editors believe, soon will be another formidable competitor, in addition to private motor cars and public buses. One of the ways in which to put off the dismal day, or at least to delay it for several years, it is declared, is for railroads to increase their speed. The Chicago Tribune says more than a quarter of a century has passed since the time from that city to New York was cut to 20 hours, and insists the trip should and could be made safely in 16 hours. If this were done the public very probably would use the trains in preference to airplanes for reasons having to do with air-mindedness. It is a thought worth keeping alive. Everyone knows the journey can be made from the Pacific Coast to Chicago

safely in very much less than 63 hours, It has been done.

This Isn't Politics, But——

Not being permitted to discuss politics in these columns we seize this opportunity in the absence of revising authority to suggest that the recent successful forecast of the election results might well lead the railroad presidents to ask the Literary Digest to take a poll showing what has become of the net return the government promised, and the guarantee some persons insist is still in operation. This guarantee, if genuine, means the paternal government now owes the railroads nearly three billion dollars.

What About Hoover and the Waterways?

The next President of the United States is on record as strongly in favor of waterways as conducive to lower freight rates. He is too good an engineer and too loyal a citizen to be in any way unfriendly to railroads—intentionally. But his active support of proposals involving the spending of millions for waterways certain to be out of service when wanted, certain to cost the people vastly more than they possibly can save, as in the case of the Erie canal, is a political blunder. True, it would serve to keep the freight equipment of western roads at home, but it would inevitably create antagonism between the East and the West. Someone should talk to Mr. Hoover, and do it just as soon as he comes home.

Solitaire?

Certain rubber stamp expressions are in the language to stay. We noticed that the toastmaster at the dedication of the Boston & Maine's new North Station said, in urging cooperation for the success of New England in industry, that railroad men and the leaders in the communities they serve should sit down together "with all the cards on the table, face up."

We shouldn't like to play cards that way. We may be wrong, but we know only one game in which all the cards are face up on the table, and this is when you cheat in solitaire.

It won't do. You just can't play that way, either at cards or in business. A far better rule for this toastmaster to urge is to play only the cards that are dealt you, and keep your hands in sight—not under the table. Common decency, honor, honesty, fair dealing. With these you can play the game of life, cards face down.

They Are Using Air and Rail Service

This magazine drew attention to the fact, a few months ago, that, despite all the talk and plans of the principal lines, the first coordinated service by rail and airplane really had been established by the Cleveland Southwestern Railway & Light Co. Some of the big boys smiled patronizingly, but the service went on prosperously. Now, after giving it a serious trial, the company reports it has proved successful.

The Cleveland Southwestern operates between a number of cities and Cleveland at which point connections are made with airplanes for Detroit. In the first two months of operation Ohioans and others from farther away have used this quick service. The company reports that the revenue is sufficient to warrant continuing it, and that it is becoming more and more popular.

Only Boys Grown Tall

Some pardonable curiosity exists as to just what has become of the Dotsero cut-off. One used to hear it said that when the Moffat tunnel was finished this cut-off would be built from Orestod on the Denver & Salt Lake to Dotsero on the Denver & Rio Grande Western. This would shorten the distance between Denver and Salt Lake City 173 miles, one of the main reasons for building the tunnel. Now the directors of the Salt Lake and the Rio Grande seem unable to agree as to which shall build the cut-off, yet both sides agree that either is able financially to do the work. Both want to build and own it, but neither side will agree to the joint trackage contract each submits. President Freeman of the Salt Lake petitioned the Interstate Commerce Commission and informed it some time ago that the Rio Grande had displayed very little interest in the project. Indeed it was said the Rio Grande had served notice that unless it could get what it wanted it would build a tunnel of its own, the track to be from Minturn on the Rio Grande, and a tunnel through the mountains emerging near Silver Plume. Avoiding any criticism of the Missouri Pacific, Mr. Freeman said the actions of the Rio Grande are based upon consideration of the Missouri Pacific, which owns half of the Rio Grande, but that he could not see how any one should expect him to agree to conditions for the benefit of another railroad detrimental to his own.

Another objection, it is generally understood, is the proposed extension of the Salt Lake from its present terminal at Craig, Colo., to Salt Lake. The Rio Grande does not want that, but Mr. Freeman says that if the Bamberger or other Utah capitalists build that road he will connect with it. Of course this would make the Salt Lake a competitor of the Rio Grande while at the same time the Rio Grande would be using the Salt Lake's tracks from Denver to Orestod and over to Dotsero should the Salt Lake build that cut-off.

After years of talk the Moffat tunnel has been built, but it takes just as long as ever to go from Denver to Salt Lake. It would be interesting to

read a report from a fact finding commission in this case if it were possible to have one, as in the recent wage discussion — but much more exciting we imagine.

Inevitable Regulation

It is said there are nearly 20,000 laws, state and federal, which affect steam railroad transportation in one way or another, and that at least 5,000 laws are directly applicable to this purpose. Of course a very large number of these enactments are cumbersome, irritating, impertinent, and wholly unnecessary. Federal regulation of the automotive industry, especially trucks and buses, is just coming over the horizon. And now we have regulation of aviation in sight. Publications given over wholly to the interests of the new transportation are discussing the subject in every issue, and the old bogey, states rights, is again on duty.

In the opinion of many aviation gentlemen any rate regulation will retard progress. We began lugging this opinion around the country 30 years ago, but we never did get far with it. The plain truth is that if the laws controlling railroad rates were applied properly, as a reading of them will convince anyone outside of Washington, steam railroads would have no complaint. They have progressed and improved despite all the regulation, and not because of it. The automotive industry and aviation will have to go through the same struggle. Just what, may we inquire, are congressmen supposed to do if they don't regulate something?

Eliminating Waste in Handling

One of the most important and interesting chapters in the yearly report of the secretary of commerce just issued, is that contributed by Ray M. Hudson, assistant director of the bureau of standards, with respect to the elimination of waste. Among other items selected for particular attention in this highly scientific division of the government is the saving of expense in handling goods by using skid platforms and lift trucks.

"Skid platforms," says the report, "are moved by lift trucks, hand or power operated. Estimates indicate that about 100,000 hand-lift trucks and 8,000 power-lift trucks are now in service. Total capital now invested in this equipment is estimated at $75,000,000 and present annual production at $16,000,000, the latter not including skid platforms made by users.

"During June three conferences with industry were held in Washington and the investigation thoroughly organized. The first essential standardization has already been accomplished by the adoption of two clearance heights for skid platforms; namely, 8 and 12 inches and of a minimum clearance of 29 inches between supports. Lift-truck manufacturers have agreed to conform to these standards. It has been estimated that the direct cost of material handling in the United States approximates three and a half billion dollars a year, and of this amount $700,000,000 is estimated as the cost of handling, loading, and unloading goods which can be shipped on skid platforms. Investigations already completed among a large number of users of skid platforms and lift trucks indicate direct savings ranging from 25 to 90 per cent in cost of packing, handling, loading, and unloading. While the investigation in this field is still in its early stage, indications seem to point to the possibility of ultimate savings amounting to $200,000,00 to $500,000,000 annually.

"Up to the present the use of skid platforms and lift trucks has been confined to plant or interplant movement within the confines of the operation of an individual concern. With the introduction of standard dimensions of equipment to assure interchangeability in use, and the working out of proper methods, it is hoped that the use of this system between shipper and consignee may be rapidly increased and extended into new commodity fields."

Change on the Erie

You may have thought for years that the Erie was just a freight line. Get that out of your head. John J. Bernet, its energetic president, recently wrote a piece for employes to read declaring that, despite contrary reports, the Erie is a Railroad, spelled with a capital letter, and Mr. Bernet wishes the fact remembered. This is intended as a solemn warning that hereafter the Erie is to be considered a Railroad giving all kinds of service in transportation; particularly good service, should anyone ask you.

"People judge a railroad," says Mr. Bernet, "by the way it handles the people who ride on it. An indifferent second rate passenger service cannot fail to impress the public with the thought that the whole railroad is a second rate affair. I have known many a car load of freight to be lost because of a poor meal, carelessly served in the dining car, or because some passenger trainman thoughtlessly was indifferent to the need of some passenger who looked unimportant. The plainest looking passenger may be one of the heaviest shippers, but all passengers whether shippers or not ought to be friends."

Time was when you said good-bye to your friends, if you were going somewhere on the Erie, as if you didn't expect to see them again for quite a while. You don't do this nowdays. The Erie will take you there and get you back before your clothing is out of fashion. It is now a Railroad.

In the Air Next?

An air mail truck was robbed a few evenings ago in the outskirts of St. Louis as it was going to the

airport to deliver the sacks of mail to a waiting plane. Several sacks of registered letters were taken along with a million dollars worth of checks going to New York for collection. The scare-head writers are waiting, doubtless, for the first robbery in the air. Three train robberies last week were scarcely noticed, tucked away on the market page. Truly indeed, the Lord giveth and the bandit taketh away.

The Train Control Decision

The Interstate Commerce Commission, demonstrating the truth of the old aphorism that time will tell, has discovered what railroad men have been declaring true for several years, that comparatively few train accidents are caused by disregard of signals. This discovery has led the commission to issue a statement announcing that in the future it will no longer compel railroads to install automatic train control devices or block signals. At no time in its whole history has the commission done anything showing more conclusively its confidence in the integrity and common sense of the men managing American railroads.

Three years ago the commission, over the protest of a large number of railroads, ordered very extensive installations on all first class roads of train control devices intended to halt a train automatically when a stop signal is disregarded.

"It has been shown in this case that the number of accidents and casualties which result from disregard of signal indications is relatively small in comparison with those which result from other causes," the decision said. "We, therefore, believe that vigorous efforts to provide adequate protection against the larger number of accidents which arise from such causes will afford a greater measure of safety than requiring by order special efforts to extend train control installation. For that reason we have concluded not to require by order at the present time further installation of train stop or train control devices.

"The carriers should be diligent in their efforts to provide adequate protection against accidents due to grade crossings, derailments, collisions, in territory not protected by block signals, failure of wooden bridges and trestles and the use of wooden passenger train cars, which have been repeatedly mentioned in our recommendations to congress.

"We shall expect them to undertake the necessary studies and tests to bring about standardization of designs and methods of installation of train stop and train control devices so that they may be used in terminal areas and on joint tracks where traffic density is greater."

No sensible person believes for a moment that any railroad man deliberately neglects any precaution against collisions, and every reading man and woman knows the roads have done and still are doing everything humanly possible to teach the lessons of Safety First in every department.

No safety device has yet been invented that will keep a fool from trying to beat a train to a grade crossing. Only education, persisted in constantly, ever will reduce the deaths and injuries at these crossings. It is a tragic hazard the railroads are trying every day to eliminate. In all parts of the country railroads are cooperating with city, town and county officials in grade separations. Omitting for the moment any considerations of human lives lost through reckless driving of motor cars, it must be obvious that damage suits are not sought by the railroads. To remove all grade crossings, of course, is practically impossible in a country so large as this. It was easy for England, but England could be dropped in Cherry County, Nebraska, and not be very much in the way. Over here, it is estimated that grade crossing elimination everywhere would cost more billions than all the roads could produce, especially while the public continues to demand lower rates.

The commission's attitude toward train control a few years ago was responsible for the investing of many millions in manufacturing the devices then declared necessary. The recent decision will be a heavy and costly blow to these interests, a fact much to be regretted. Such interests must turn their attention to other activities. In time the brains and energy invested in these devices will be absorbed, naturally, in the great enterprises necessary to the highly efficient transportation systems of the United States.

The Editorial of This Edition

IF YOU have ever had any farming experience you must remember the discouraging years spent by the state colleges in hammering away at the profitless practice of keeping scrub stock on the farms. The lesson has not yet been learned thoroughly, but there are not so many scrub bulls and cows as there used to be, and there are fewer dual-purpose cattle everywhere. Farmers have learned that pure-bred stock eats no more than animals of doubtful ancestry, and often not so much; furthermore, they know that even if the pure-bred animal eats more than the low-brow it pays for its feed in rich returns.

If you are not informed about such things it is well to explain here that dual-purpose cows bear the same relationship to agriculture that an old road engine bears to switching. The road engine doesn't pay in yard work; it eats too much coal, and costs too much in time wasted stopping for water, repairs and other things. Dual-purpose cows raised by some farmers for beef and dairying, have voracious appetites, do not produce the fine juicy steaks and roasts you like to buy at a premium, and give down mighty little milk, comparatively, and what they do give is low in butterfat which means less cream and butter. If a farmer buys scrub stock he is starting with a money-losing investment, out of date with modern animal husbandry.

Out in Wyoming five or six years ago a farmer

decided to invest more heavily in live stock. He was determined to start with a pure-bred bull. Weeks were spent in looking around, talking, figuring. Finally, one day, the farmer decided, and against the advice of neighbors who were making money in the very way he had chosen. A pure-bred bull cost too much, he said. He needed power, stamina, ability to give good returns, but such a machine cost too much. So he bought a big, lumpy bull that hadn't as much ancestry as a prairie dog. Saved a lot of money that day.

What was the result? Before he had made a decent start that farmer was years behind the times. He had a lot of rangy scrub calves from the old cows, and wasn't one cent better off than he had been in the beginning. Indeed he was in a worse fix because the steers he produced didn't make the kind of beef the market demanded, and the "she stuff" turned out to be canners. Dairying was out of the question. He was getting the maximum return from his investment, all right, but the maximum was too low. In the next meeting of the farmers' institute this chap told his story with much chagrin. The county agent's advice, given him long before and ignored, was repeated. It was:

"Never buy a bull by the pound."

And this wasn't all. "You'll have to pay more for the pure-bred," said the county agent, "but you'll be ahead in the long run. The pure-bred has the power to perform properly. He can run rings around your grade bulls. With an assured ancestry you'd have a bargain, provided you take good care of him, you'd get good young beef such as the buyers want nowdays, and your cows would guarantee you cream checks every week. A bull bought by the pound isn't worth two whoops in a rain barrel."

Railroads, or their speaking representatives, have said a good many rather unpleasant things about farmers, their lack of foresight, neglect of efficient methods, ignorance of marketing. But railroad men might learn some extremely important economic facts from farmers. Perhaps you remember the story of the traveler, lost on the plains, who stopped an Indian and asked him several questions he couldn't answer. "You don't seem to know very much," said the traveler. "No," replied the Indian, "but I'm not lost."

Farmers may not know much about locomotives, but they aren't lost. You can't sell them a tractor or a plow, a harrow or grain drill that hasn't the latest and best attachments, what railroad men would call jewelry, the attachments that mean power, performance of the best, and maximum returns. They may be a bit backward about spending money for plumbing, bath tubs and washing machines, but they do buy good bulls, and for the very simple reason that they know it pays. If you doubt this it would be worth your while to talk to a few of them at the International Live Stock Exposition at Chicago. At the same time it would be well to notice the kind of cattle that win the blue ribbons. You'll never see one on a scrub.

Pure-bred bulls and locomotives with the highest power obtainable are in the same economic class. You simply can not get good results from cheap things. It isn't right to expect it. You can't buy a good pure-bred bull for a low price, either, merely because sales have not seemed very lively. It always is worth the high price because it can deliver the goods. A cheap animal is false economy, and the same rule applies to locomotives. You can get a necktie for ten cents at one of Woolworth's stores, and it will give you just ten cents worth of service, and you won't belong in good society. If you buy a scarf you pay twenty times as much or more but you look like a gentleman.

Wise farmers who keep abreast of the developments of science do not believe in devoting first class efficiency to fourth class equipment.

They don't buy bulls by the pound.

It Does Pay to Think

In railroad work, as in most other occupations, certain men perform the duties for which they are paid, and do nothing else. In too many cases these duties become routine, mechanical rule of thumb, and some day, when a change comes along, the automaton slips. In the largest measure, however, railroaders are thinkers. A little encouragement from the powers brings out suggestions of value.

The second six-months' period of the Pennsylvania's bureau of new ideas, May 1 to October 31, just reported, serves as a fine example. For the ideas presented the road awarded special prizes for the best three suggestions adopted, based on a combination of saving effected, originality, and improvement in operations, methods or service.

The first prize of $100 went to an engineman, the second prize of $50 to a pipe fitter, and the third prize of $25 to a conductor.

Since the bureau was established one year ago, 2040 suggestions have been received from employes in 137 occupations, from every department of the service and from every part of the system.

When submitting suggestions, a number of employes have referred to the bureau of the new ideas as a welcome outlet for constructive thinking, and many of those whose suggestions have been adopted have written expressing the satisfaction it gave them to know that their ideas proved useful.

Incomplete Invention

A Norwegian inventor has perfected a device to overcome the roar of the propeller on an airplane. But no one has yet thought up a scheme to overcome the roar of the passengers when they hear about the rates.

State Boards Worried Over Excursion Rates

By R. A. Sullivan

UNFAIR practices by railroads in making excursion rates to the detriment of motor bus lines, and recommendations favoring regulation of motor vehicles and airplane transportation of passengers and freight, were the principal features of the yearly convention of the National Association of Railroad and Utilities Commissioners at New Orleans, Nov. 13 to 16.

In a committee report Frank P. Morgan of Alabama charged that many railroads are abusing their privileges in fixing excursion rates. Said Mr. Morgan:

> There has been a very noticeable tendency in recent years on the part of the carriers to extend the function and use of excursion fare. In fact, so frequently have these excursion fares been established that an impression is gaining that they are being employed as a competitive weapon against bus lines, and as a means of checking the decline in passenger travel. If this tendency continues, a serious question will be presented to the various commissions as to whether such a method of publishing passenger fares is in conformity with the spirit and purpose of the policy of regulation. Unjust discriminations may easily arise from too free use of this privilege. Curiously, this practice is resulting in giving the occasional traveler a lower fare than that accorded to the regular traveler, which is contrary to every sound principle of rate making. It seems the time has arrived to look into this matter in order that the laws of many states which now hold out carte blanche authority to the carriers to establish excursion fares at will, may be suitably amended if abuses are found to exist.

Mr. Morgan called attention to excursion fares between Montgomery and Birmingham, adding that the railroads "do not offer excursion rates between Birmingham and Mobile. Bus traffic," he said, "between Birmingham and Montgomery is heavier than between Birmingham and Mobile."

Resolutions adopted included one calling for an investigation of passenger rates to determine whether unjust discrimination exists against the regular passenger, and if this is found to exist, that a bill be introduced in congress to require the sale of mileage books by railroads at "some price less than the standard fare of 3.6 cents." Another resolution calls upon the Interstate Commerce Commission to extend its investigation of the accounting rules of railroads to cover an inquiry into regulations for allocating and segregating by state lines operating expenses and revenue receipts that will fairly disclose the net operating income by state lines and by rate territorial lines.

A resolution that a uniform motor vehicle law should be drafted, designed to control and regulate private automobiles, motor buses and motor express and freight trucks, was referred to a committee, with instructions to send copies of such a proposed bill to the various commissioners, who in turn will undertake to introduce the measure in the legislatures of the several states.

The repeal of the Recapture Clause of the Transportation Act of 1920 was asked for in another resolution, which was referred to the committee on legislation to report at the next convention, which will be conducted at Glacier Park, Mont., Aug. 27 to 30.

A committee was appointed to study the traffic possibilities of aviation, with instructions to report to the next convention, with a view of formulating regulatory measures governing airplane transportation of passengers and freight.

The conflict between advocates of centralization of governmental activities under federal jurisdiction and those who would "preserve at least a semblance of power over matters affecting the citizens of the respective states to the states themselves and their respective agencies," was the keynote of the convention. It was indicated that if the tendency toward federal jurisdiction over the affairs of the individual states continues the public utility commissions would become mere "fact-finding bodies."

The feeling that the utility commissions are losing their authority as rate regulatory bodies in railroad matters was brought out clearly in a report by a committee headed by William J. Smith of Illinois.

"To obtain full and complete cooperation it is essential that, before orders are entered by the Interstate Commerce Commission fixing a relationship between commodity rates and the first class rates applicable in the same territory, conferences should be held between representatives of the commissions of the affected states and representatives of the Interstate Commerce Commission, and that such conferences should be held irrespective of whether there is pending before the state commissions in any formal proceeding the rates under investigation by the Interstate Commerce Commission."

Officers elected are Lewis E. Gettle, Madison, Wis., president; Charles Webster, Des Moines, Ia., and A. J. Maxwell, Raleigh, N. C., vice presidents; James B. Walker, New York, re-elected secretary; Clyde Bailey, Washington, assistant secretary, and John E. Benton, Washington, general counsel.

The Picture on the Cover

The picture on the cover, this month, obviously is appropriate to the season in a large part of America, but there are places where its romantic and artistic appeal may fall flat. In this interesting picture a rotary plow is shown trying to buck its way through the Copper River Valley with the United States mails. Men and women must have their letters, most of which are bills just now, and the colorful postcards from friends far away. The picture is by Wide World Photos.

A smile at the ticket window often helps the patron of our road to enjoy the journey.

Air Schools *By the* Roadside *and the* Death Rate

Safety First Much Needed in Aviation

By Fred Goodcell

A Little Bit of Whoopee in the Clouds in One of the Western Air Transport Company's Big Planes. At Least the Picture Is Said to Have Been Taken Aloft. A Little Bit of Modern Nonchalance We Calls It.

A REPORT was printed in this magazine last month showing that during the first six months of 1928 official records of the department of commerce show that 153 persons were killed and 256 injured as a result of airplane accidents. That is a tragic record and it has tended to retard the advance of air travel, although marked progress is being made steadily.

What about these accidents? Why did they occur? How can they be lessened?

Answer those questions and you build up a good reliability case for the commercial airplane operated in a regularly established service. It is not easy, however, to get the average person, the newspaper reader, to differentiate between the regularly established air transport line and the stunt flyer, or the road-side ballyhoo artist who tries to operate an antiquated plane and comes to grief doing it.

Read the daily newspapers and you will see reports nearly every day of airplane accidents. They come from every part of the nation and from foreign countries. That, in fact, is one of the handicaps under which the commercial air service is laboring; every airplane accident, no matter where it happens and without regard to the prominence of the persons involved, is considered news.

If the same policy were followed with respect to automobile accidents; if every automobile accident that occurs in the United States and in foreign countries were reported every day in detail in the newspapers there would be scant space for the chronicling of any other news. Automobile mishaps, unless they occur locally or involve some person of unusual prominence, are not considered worth recording as news.

A recent report showed there had been more than 500 fatal automobile accidents in Los Angeles since the first of the year. That is a greater total of fatalities than has occurred in air travel in all parts of the world. The comparison, of course, is faulty because there are so many more automobiles than there are airplanes. Yet, there are many laws supposed to regulate automobile traffic, and hundreds of trained officers attempting to control such traffic. All the drivers are licensed, the machines have been highly perfected and the roads are uniformly in good conditions. Practically no such safeguards now surround airplane use, although the movement toward proper regulation of air travel is spreading rapidly.

That confirmed air traveler, Will Rogers, described the situation in his own humorous way recently when he said: "Seven people were killed in the whole of America over the week-end in airplanes, and the way the newspapers headlined it you would have thought Nicaragua had invaded us. Yet in New York City alone 15 were killed and 70 wounded with bad liquor, to say nothing about Chicago. So it's safer to take a flight than a drink."

An analysis of the airplane fatality figures tends to prove the soundness of Will Rogers's logic. This analysis shows that only six of the 153 fatalities occurred in airplanes operated by commercial air transport companies flying over regularly established airways. Four pilots and two passengers were killed, an average of one fatality every month. The other 147 fatalities occurred during student instruction, tests, races, endurance flights, pleasure flying and other trips not on scheduled airways.

The airplanes flying on the commercial routes on which the six fatalities occurred cover approximately 42,062 miles daily. The record, then, is one fatality for approximately every 1,220,000 miles, a distance equal to 48 times around the globe.

That is a record of which the airplane builders and the air transport operators may well be proud. It shows how reliable air travel is becoming. The difficulty is to make the average person differentiate between what happens on the established commercial air line and what happens elsewhere.

Art Goebel, Holder of Transcontinental Eastward Speed Record.

Emphasizing this point is a report issued recently by Pynchon & Co., of 111 Broadway, New York in collaboration with Black & Bigelow, Inc. In this report it is stated:

"An improper idea of the safety of airplane travel is obtained through the unfortunate fact that the average citizen hears only of the crashes and fatalities and very little, if anything at all of the thousands upon thousands of miles flown without any accident.

"The reliability of the airways for safe transportation is well illustrated when one considers that merchandise insurance rates from London to various European cities carry a preferential rate of from 70 to 35 per cent less than rates obtaining for surface transportation.

"Although statistics on safety may have little effect upon the airmindedness of some individuals, yet it is quite interesting to note that for every crash many thousands of miles have been flown with complete safety."

Pynchon & Co.'s report says that during the calendar year 1927 contract mail operators covered 4,500,000 miles and carried 8,679 passengers. The fatalities occurring in this tremendous distance were limited to one passenger and six pilots.

"It is believed," continues the report, "and not without good reason, that if automobile statistics were accurately known, they would not make as favorable a showing as the aviation results."

There is thus shown a belief in the reliability of the airplane by financial firms of nationwide prom-

—International Newsreel.

The Great Croydon Airdrome, London. The Improved Port, With Every Necessary Accessory for Commercial Transport, Was Dedicated Not Long Ago by Lady Maude Hoare.

inence. This has been further emphasized during the last few days by the entrance into the aviation industry of several banks of national prominence and the affiliation with air transport projects of men who have gained distinction because of successes in other fields of industry. Not only are the great financiers beginning to give credit to the airplane for its performances, but the editors of the nation are showing an appreciated knowledge of its possibilities. This has been very ably expressed in an editorial appearing a few days ago in the Post-Advocate, published at Alhambra, Cal. This editorial is headed "Flying Accidents." It reads:

The necessity for doing something to curb flying in unfit planes and by unskilled pilots becomes more startlingly obvious as the list of accidents grows. Statistics for a recent period of six months show that 153 persons had been killed in aviation casualties. Of this number, only six, four pilots and two passengers, had been flying over scheduled air routes in licensed and inspected machines. One of the most active air lines in operation is that between Los Angeles and Salt Lake City. In all its months of service it has not had a single serious accident, and not one fatality.

Close to many cities throughout the country are fields in which the available machines may be regarded as death traps. They are types that have been discarded and should have gone to the junk heap. Some of them are piloted by incompetent and inexperienced men. Pilots have been known to undertake the carrying of passengers when their own training was not more than ten hours in the air in solo flight.

That these abuses must be eliminated hardly needs the saying. The proper authorities, whether federal, state or municipal, should not lose time about it. Particularly, no delay should be tolerated while the question of which is the proper authority is being discussed. The public has a right to full protection, and accidents that might have been prevented by reasonable precaution hamper the development of aviation.

To date, the only effective regulations governing air travel are those promulgated by the department of commerce. They are national in scope, but they control only interstate travel. Air transport concerns have recommended that these regulations be adopted by the several states because it is very desirable that the air transport regulations be the same in all states. It is easy for all of us to remember the confusion that resulted from unnumbered local ordinances enacted immediately after the automobile came into common use. The trend since then has been for uniformity, although the result fully to be desired has not been accomplished.

To the airplane, with its immense area-covering possibilities, uniformity of regulation is extremely essential. To illustrate the mistakes that may be made there is the instance of a western city that adopted an ordinance forbidding an airplane to fly over the city at an altitude of less than 1000 feet. The city's airport was within the municipal limits and, because of the 1000 foot limit, it was impossible for any airplane to use it. The airplane could not be 1000 feet in the air and on the ground at the same time. The purpose, of course, had been to forbid low flying over the business section of the city, but the terms of the ordinance were all-inclusive. The ordinance has since been rescinded.

Two outstanding detriments to the cause of sound aviation are the road-side joy-hop institutions and the teach-them-quick aviation schools. The joy-hop institutions, in many cases, operate antiquated planes that are unfit for use. There are no laws to govern them because they operate within state limits and thus do not come under the federal regulations. The theory seems to be that if you want to commit suicide it is nobody's business except your own.

As regards the aviation schools, they are essential and desirable if they are properly conducted. But, as Colonel Lindbergh said, $100 will not pay for a course in aviation; and many schools advertise a course in aviation for that sum, and promise to turn you out as a trained pilot. It can not be done. In this connection we can quote directly from a statement by Colonel Lindbergh. He says:

"There are many schools which advertise that they will teach a novice how to fly an airplane. Some of them give the course for $100, usually turning out the student as a finished pilot after about ten hours in the air.

"Ten hours of flying will not make anyone a pilot, and $100 will not buy a good course in training. The man or woman who wishes to become a pilot should be prepared to spend at least $500 for the training, and some agreement should be reached whereby the use of a plane for practice may be obtained after the course has been completed.

"A great many serious aviation accidents occur because of pilots who are turned out of cheap schools, without sufficient experience to meet emergencies."

The department of commerce regulations have been designed to meet this situation, and as they are adopted by various states they will accomplish much good. The federal regulations provide for the inspection and licensing of all airplanes and their motors, and for the examination and licensing of all pilots and airplane mechanics.

The requirements for pilots vary according to the work they are to do with a maximum for pilots who expect to engage in the air passenger transport service. These pilots must have at least 200 hours of solo flying and they must pass a rigid written and oral examination as well as a physical test. The pilots are re-examined every six months. The mechanics are licensed after they have passed a rigid test and they are re-examined every two years. The re-examinations are made to assure that the pilot and the mechanic have kept abreast of all developments in his particular line of work.

The Pilot's Guiding Light at Night.

Every commercial air transport company in the United States gladly adheres to the regulations promulgated by the department of commerce, and therein lies the explanation of the splendid reliability record these companies have established. They use only licensed planes and they employ only licensed pilots and mechanics.

The result of this is shown in the record of Western Air Express, Inc., which now operates four air lines in western states and is preparing to establish an air passenger service that will permit the traveler to go from Los Angeles to Chicago in 20 hours. The Los Angeles-Salt Lake City route operated by this company was established in the spring of 1926, and it has a record of 99 per cent efficiency. One of the pilots, Maurice Graham, flew a total of 178,000 miles without even being late. No plane on this route has ever been seriously damaged, and not an ounce of mail has been lost. One passenger's head was bumped. The distance covered exceeds 1,200,000 miles and it has been flown daily, through all kinds of weather conditions, and across mountains and deserts.

The outstanding achievement of this company has been the establishing of a de luxe passenger service between Los Angeles and San Francisco. Twelve-passenger, tri-motored Fokker monoplanes are operated and the round trip is made daily. An on-time schedule rivalling that of the finest railroad has been maintained. There has never been the thought

—Wide World Photo.

The Keystone Patrician, Said to be the Largest Airplane Ever Built, Valued at $75,000, Burned Just As It Was Preparing for Flight.

of an accident—not even a tire has been punctured. This line was established with the cooperation of the Daniel Guggenheim Fund for the Promotion of Aeronautics, and was designed to demonstrate that an air passenger transport service could be operated regularly and at a profit. The demonstration has proved successful.

Now comes Western Air Express with the announcement that early next spring it will extend its passenger service eastward, operating large Fokker planes similar to those now in use on the Los Angeles-San Francisco line. And the traveling public, or much of it, will be ready to patronize the service because it knows the company maintains the highest efficiency.

This record has been the aim of all sound air transport companies. Their efforts have been hampered by the road-side joy-hoppers and the cheap aviation schools. Their development has been retarded because the people have not differentiated between the unfortunate airplane accidents that result because of unskilled manipulation or unworthy machines, or as the result of exceptionally daring flights, and the sound, steady flying that is being done by the commercial transport concerns.

Apart from this consideration of accidents and their causes, comes the frequent inquiry, "What holds the airplane up?" Many persons, perhaps most of the public not familiar with the subject, believes the plane is held up by the pressure of air under and upward against the wings. But this is not true. Man had flown kites for thousands of years before he began seriously to consider the building of an airplane. Because he had always flown kites into the wind he reached the conclusion that an upward pressure of air against the under surface was all that he could depend upon to keep the airplane up. But early experimenters in aviation who built airplane gliders with flat, kite-like wings soon found that such machines could not be made to rise with much more than their own weight. The problem of imparting greater lifting power to the airplane wings was long one of the deepest hidden secrets of flight and its solution accounts for the peculiar curved shape now given to such surfaces.

The secret lay in the fact that the pressure against the under surface of the kite is only about one-fourth of the force available—the other three-fourths being a suction from above. A flat surface tends to destroy the effect of this suction. A properly curved surface takes full advantage of it.

Puzzlement comes because the average person fails to consider that air has weight and that rapidly moving air has tremendous power. The newspapers constantly tell what a cyclone, a tornado or a gale has done; it all is just the power of air moving rapidly. The effect is the same if calm air is met by a rapidly moving body.

The motors drive the airplane along the ground at rapidly increasing speed. The airplane rises from the ground when this speed has built up an air resistance that gives a pressure from below plus a suction from above which combined are sufficient to overcome the weight of the machine. The suction pull from above gives approximately three-fourths of this "lift," while the pressure push from below supplies only approximately one-fourth.

A surface which, to rise, depends entirely upon the pressure from below is a kite.

It is the suction from above that holds the airplane up.

A successful man is one who has tried, not cried; who has worked, not dodged; who has gotten under the burden, not merely stood off, looking on, giving advice and philosophizing on the situation.

What the Papers Say

DISTANCE and time in that older day were thought of as barriers to be accepted, making the commerce of peoples slow and costly and enforcing a condition of separate community life. The unification of thought and knowledge now accepted as a basis of conduct of affairs was impossible.

The railroad and telegraph were the great precursors of other mechanical means for transforming the world. It may or may not be a better world; but it surely is a far different world, because of what has been done in a hundred years, and if it is not an improved world, the fault is with people, not with mechanics.—Rochester (N. Y.) Democrat Chronicle.

Costly "Economy" This

Declaring that government operation of ships during the past seven years has cost American taxpayers more than $250,000,000, Chairman White of the house merchant marine committee, in an article in the Nation's Business Magazine, urges the establishing of a policy of long-term and adequate mail contracts as a means of aiding the development of a privately owned merchant marine.

The broader application of the mail contracts, awarded by the postoffice department for foreign mail carrying, would result in the transfer to private ownership of lines now operated by the federal government at a loss, he declared. At the same time, he added, such a plan would insure the permanency and healthy expansion of other existing lines now privately operated.

"There is very definite assurance," the article said, "that the inauguration of such a policy would result shortly in the building of super ships to provide speedier and better service than the world ever has known."

White's article pointed out that the advocates of government ownership assert the American public is not "ship-minded and the only way to keep what ships we have and to develop our services further" is to continue governmental operation. But he argued that the American people would prefer to see the ships "owned and operated by private interests than by the government."

An Italian Opinion

American railroad rates are among the cheapest in the world, in spite of the fact their wage scale, and hence upkeep, is the highest.

This enviable record was made in the face of enormous difficulties. Such legislation as the La Follette revaluation act has cost the lines, as well as the taxpayers, a great deal of money which must be made up in revenues. The railroads' tax burden, which in many years has been greater than dividends, must be raised by freight and passenger rates. In spite of such overhead entirely beyond their control, the lines have improved their service and kept the cost of transportation remarkably low.

Those who feel that the cost of hauling freight or passengers is too high, should place the blame where it is due: on extremely high taxes and restrictive legislation. Maximum improvement and cost reduction will result from constructive government policies and tax relief.—Bridgeport (Conn.) La Sentinella.

The Merry-Go-Round

When the Interstate Commerce Commission, a year ago, reduced the rates on California grapes invoking the authority of the Hoch-Smith Resolution to relieve the coast grape industry which was "in serious financial straits," the question arose of how long could the New York and Pennsylvania growers stand the reduced rates from the coast.

Now, on the allegation that existing rates are "unduly preferential to shippers of fresh grapes from California" and again invoking the Hoch-Smith Resolution, the rates on grapes from the eastern states have been reduced.

What a merry-go-round! Reduce the rates because of a depression in one district, the purpose being that "the markets must be brought nearer by rate reductions," and lo! another district suffers and needs help. How long now before the outraged California grape cries out for more help? And so on until the poor railroads must pay for the privilege of carrying grapes. The shippers and the transportation agencies of the country may well ponder this language from the United States court for the southern district of West Virginia:

> So far as the general language of the resolution is concerned, to the effect that the conditions which prevail in industry should be considered in adjusting freight rates to the end that commodities may freely move, this no more than a general declaration that freight rates shall be adjusted in such a way as to provide the country with an adequate system of transportation, and congress certainly did not intend by this language to create in the commission an economic dictatorship over the various sections of the country with power to kill or make alive. If the commission has the right in a rate adjustment to consider the shift in traffic to a community already paying a higher rate and act upon it as one of the factors in still further widening the rate differential, its power to control the economic development of the country is practically unlimited.—The Nation's Business.

When rogues fall out, honest men get into their own.—Sir Matthew Hale.

Little Stories About Big Men

THE LEAST known and possibly the most powerful man in the railroad world today is, without doubt, Arthur Curtiss James of New York. Because of his genuine modesty and his aversion to the spotlight of publicity so little is known about him that few of his employes ever heard his name.

It is Arthur Curtiss James, who, at 59, has wealth no one knows how much over $100,000,000, is controller of the Western Pacific, the Denver & Rio Grande Western, and has a hand in banks and subsidiaries, mines and mining operations, lumber and fuel companies and lesser enterprises of startling variety.

Back in 1912, before the people had their present confidence in large sums of money, James was named in a congressional "money trust" investigation as one of J. P. Morgan and John D. Rockefeller's 320 "interlocking directors." He was referred to as a "field captain" of finance. This listing probably pained him, for as observed years ago, he objects to public print and never has found it at all necessary either in his numerous social or financial triumphs. Since he ceased to be anything so minor as a "field captain" he has withdrawn almost completely from avoidable appearances in print.

Yet this financier has possessions and power that a king might envy, and he has led a life of protected adventuring and travel that rivals that of the Prince of Wales.

He was a rich man's son. His father, D. Willis James, was an associate in railroading with James J. Hill, and bequeathed his son several million dollars—only a few—and a taste for luxuries such as slipping about the world in private yachts.

Arthur was educated in private schools and graduated as a Bachelor and Master of Arts from Amherst college with the class of '89. He then entered Phelps, Dodge & Co., which his grandfather had had a hand in organizing about 1835, as a mail clerk. His classical education proved no handicap.

In a short time, he was an important figure in the important old firm. Furthermore, his industry and application were such that he was not desk-bound, but was enabled to spend a considerable portion of his time in yachting and other gentlemanly amusements. Soon, for instance, he was a fellow guest with King Edward VII, a monarch whose beard style he has adopted, at an English house party.

Although James has never given out any "success" interviews, telling how he rolled his father's millions into their present bulk, some astute financial writers have pointed out that his methods were simple. When he wanted to control a business, he simply bought the majority of the stock, or as much as was necessary to bring him the balance of power. The interest taken in his career by J. P. Morgan & Company may have helped him over some rough places; but on the other hand, the Morgans had little cause to complain.

On his yacht, the 200-foot auxiliary bark "Aloha," or on one of the speedy express cruisers aboard which he flits to his office, he has planned some of his most far-reaching railroad coups.

- International Newsreel.

Arthur Curtiss James, An Informal Pose.

His love of classicism is shared by his wife who was Miss Harriet Eddy Parsons. It was illustrated at the famous party they gave soon after the opening of "Beacon Hill House," their show place at Newport, R. I., which eventually became the largest estate there. Before the eyes of their delighted guests, from a garden set with elec-

Women Working in the Railroad Yards at Irkutsk.

tric floral pieces, Greek gods and goddesses arose, made mystic and disported themselves; and Amphitrite, sleeping in a pearly shell as big as a Rolls-Royce limousine, was awakened and danced. Such pageants, requiring 40 or 50 professional performers, long have been a staple entertainment at the James Newport villa, and were staple there before Cecil B. De Mille made his first movie.

James's town house, at Park Avenue and 69th street, is also conceived and operated on a lavish scale. It is of marble and occupies most of the block with its small garden and grounds. The house cost $350,000 to build, but it is a mere shell for furnishings of much greater value.

James has given away a great deal of money, sums almost certainly totalling several millions in all, although the amount has never been tabulated. During one drive he presented Amherst college with $250,000. King Victor Immanuel of Italy made him a Chevalier of the Crown in acknowledgement of $300,000 slipped to a New York Italian children's project.

It Happened in Harbin

Professionally speaking, sentiment isn't the rule of thumb for a railroad man. Fine though they are, sentiments do not make for improved safety devices and measures, nor do they build up traffic volume, nor increase income and cut down expenses and all that sort of thing.

But humanly speaking, there's a lot of sentiment in railroad men. In friendships, in loyalties, in attitude toward women, in plain, matter-of-fact religion, in pride in their job, in love of country and in a whole lot of other things like these, railroad men rank high.

This story about B. O. Johnson, now assistant to the president of the Northern Pacific, comes from far-away Harbin, Manchuria. In 1921 he was Colonel Johnson in charge of a unit of courageous, efficient American railroad men charged with the duty of keeping in running order the great Trans-Siberian Railroad, the life artery of Siberia. As one of the leading members of the American colony in Harbin, the Colonel was asked to read the President's proclamation at the Thanksgiving service.

"I suppose you'll send me a copy," said Colonel Johnson in accepting.

"That's just the trouble," replied the chairman for the Thanksgiving service. "You know it takes from the speed record of 15 days to over a month for mail to get here, these days, from the states. I've hunted everywhere, even through the stuff over at our consulate, but there's nothing late enough for that proclamation. I've several people on the lookout for it. I thought that anyone who could keep the Trans-Siberian running in revolutionary times ought to be able to find the Thanksgiving proclamation."

"Well, we'll both keep our eyes open," was Colonel Johnson's brief reply.

In spite of Bolshevist revolutionists, Chinese brigands, international looters of all kinds, the mail came and went, but no proclamation came with it. After the last mail, the day before Thanksgiving, the chairman called on Colonel Johnson. "Nothing doing," reported B. O. Johnson. "But there's one mail that'll come

Near Matsiyevskaya (You Say This in a Whisper) the Pipe Line Between Tender and Engine Froze.

early tomorrow morning, and the proclamation might come with it," he concluded hopefully.

"Meanwhile, I'll search the American colony," agreed the chairman.

To make this real American fiction, we ought to say that the mail on Thanksgiving day brought the proclamation and the day was saved. But as this is the truth, we'll have to admit there was no proclamation.

"All right, we'll have to give it up," said the chairman. "We'll get along without it some way."

Colonel Johnson said nothing as if, although he had given up, he wouldn't admit it. Finally it came time for the service and the American colony and their friends were gathering. As the chairman started to the front of the room to open the service, he noticed Mrs. B. O. Johnson and her daughter Helen come in. Mrs. Johnson waved a paper. The chairman almost ran to her, hoping against hope that a copy of the proclamation had miraculously appeared from somewhere. It had!

It turned out that Colonel Johnson hadn't given up at all. At an American Thanksgiving service there simply had to be the President's proclamation. He kept worrying over the situation. Suddenly it came to him that there was an American warship in the Zolotoi Rog (Golden Horn) Harbor at Vladivostok. He knew that observance of national holidays was a part of the law aboard an American warship. But Vladivostok was several hundred miles away and the Harbin Thanksgiving service would start in something over an hour.

It happened that the American railroad unit had a private telephone wire from Harbin to Vladivostok. Colonel Johnson stepped to the telephone and called up his branch office in Vladivostok and asked whether one of the men could go down to the ship and get a copy of the proclamation. When this was done Vladivostok called back Harbin and Colonel Johnson copied down on paper the President's proclamation as it came to him over those long miles of Manchuria and Siberia. And this was the paper Mrs. Johnson waved at the chairman.

B. O. Johnson, Assistant to the President, Northern Pacific Ry.

Boys, We All Know, Are Peculiar

Boys, as we have observed, sagely, in another part of the magazine, are peculiar, referring to the sons of L. W. Hill, chairman of the board of the Great Northern—one entering railroad work as a section hand and going up through various departments while the other, finding the work rather unattractive and dreary, prepares to go into the Northwest Mounted Police. Boys are peculiar.

We have just told the interesting story of a Thanksgiving ceremony in far away Manchuria in which B. O. Johnson read the President's proclamation. Mr. Johnson started his railroad career as a section hand for the Northern Pacific at Minneapolis, shortly after being graduated from Worcester Polytechnic Institute in the class of 1900. As might be expected he didn't stay long in that work for the simple reason that the Northern Pacific doesn't overlook promising material. In the next two years Mr. Johnson held minor jobs in the engineering depart-

Sleeping Car on the De Luxe Trans-Siberian Express at Harbin. The Russian Conductor Has His Orders, and No One in This Country Could Read Them.

ment. In 1902 he entered the operating department where he had various positions such as trainmaster and superintendent on the Yellowstone, Fargo and Montana divisions before the World War came along. In this disturbance Mr. Johnson served as major, lieutenant colonel and colonel in the railway corps of the United States army in Siberia. His service there extended over five and a half years. He was decorated by the French, Czecko-Slovakian, Chinese and Japanese governments. In April, 1923, Mr. Johnson was made assistant to the vice president in charge of operation on the Northern Pacific. It was from this position that he was promoted in July, 1927, to become assistant to the president.

Railroad Courtesy

The new management of the Erie Railroad has distinguished itself not only by its operating results in the last year but also by its marked courtesy toward the public. Recently a native of Belgium wandered into the company's main offices and happened to meet an executive in the hallway who asked him if he could be of service. The Belgian said he wanted to see the president. The official invited him to his offices whereupon the visitor explained that his family had formerly been large holders of Erie common which they lost through litigation. He admitted he was down and out and asked for a pass over the road to North Carolina. The official patiently took a map and showed the gentleman that the Erie did not go anywhere near that state but suggested that he go to the offices of the Seaboard Air Line.

Philippine Railways Prosper

Railroads of the Philippine Islands, owned and operated by the Manila Railroad Co. and the Philippine Railway Co., are 1,375 kilometers, or 855 miles long, according to the transportation division of the United States department of commerce. The Manila Railroad Co. operates the railways in the Island of Luzon. These comprise 1162.72 kilometers of 3 foot 6-inch gauge track of which 658.63 kilometers are main line, 402.09 kilometers branch line and 100 kilometers are sidings.

Operating revenues during 1927 amounted to $6,519,270 compared with $6,326,200 in 1926. Operating expenses were $3,806,966 during 1927 compared with $3,847,131 in 1926. The motive power and rolling stock in operation at the close of 1927 consisted of 152 locomotives, 1,837 freight cars and 194 passenger coaches. During the year, six locomotives, 160 freight cars and seven passenger coaches were purchased. The condition of the equipment is considered good.

The Philippine Railway Co. operates the railways in the Islands of Panay and Cebu. This comprises 212 kilometers of 3 foot 6-inch track, all of which are main line. Operating revenues during the year amounted to 681,543 and operating expenses to $495,375 as compared with $666,643 and $511,208 during 1926.

During the year construction work was in progress on two kilometers of track into the city of Iloilo in addition to new station and grounds. This work cost $125,000. The track was opened to traffic April 1, 1928. At the close of 1927 there were in operation, 16 locomotives, freight cars and 54 passenger cars. Five cane cars were purchased during the year. The condition of the equipment is good.

Central America Joined By Rail

The first railroad interconnection between any two Central American countries, now under construction by International Railways of Central America, is nearing completion and is expected to be open for operation by February. The new railroad will connect Salvador and Guatemala. The portion of the line to Salvador is already completed and in use.

The new mileage, which comprises 197 miles, provides a direct trade route from the Pacific Coast region of Salvador to the United States and Europe for the first time.

He's armed without that's innocent within.—Pope.

Congress on the Job and the Talk Begins

No Railroad Legislation Likely

By J. W. Garvin

The National Capitol.

THE SHORT session of congress, now well under way, is not likely to mean very much to railroads. There are several important bits of legislation hanging around but no one expects the nation's law makers to give them any attention; railroad consolidation, regulation of motor vehicles, the same for aerial transport, bills requiring railroads, with some exceptions, to install steel postal cars, and, of course, the old bogey, the Pullman surcharge. Even if the house should act on consolidation and the motor vehicle regulation measures the situation in the senate is such that action in that sacred precinct is not at all likely.

Railroad men, naturally, are interested chiefly in changes in the membership of both houses. Sometimes this means peace and then again it brings on war worse than ever against anything on wheels, some men being just constitutionally unhappy until they get something started to regulate something, with a pronounced preference for a crack or two at railroads. The 71st congress, of course, will be no different in this respect than any other. True, there are to be 55 Republicans compared with 39 Democrats, a majority of 16 for the winners of November 6, but this doesn't mean a thing for railroads in the opinion of an outsider; when it comes to regulation carried to the ultimate a Republican is just as rabid as any other representative. Senator Shipstead of Minnesota, the only Farmer-Labor member, former dentist, is expected to fall into line with the restless La Follette of Wisconsin, the turbulent veteran, Norris, of Nebraska, Brookhart of Iowa, and other off-the-reservation gentlemen whose votes are mighty important with whichever side can win them in a close contest. These are the men whose brightest hours come from blissful contemplation of a forthcoming objection to some piece of legislation which may seem to be moving along too smoothly. All of which brings to mind the latest humor of Washington, questionable in some ears, a bit ungrammatical, as are many songs, and quite improper to sing in the upper house; however, it concerns the one vacancy now existing in the senate.

Where Congressional Mileage Starts and Ends.

Grand Stairway, in Library of Congress.

Where, O where is Senator Vare;
In other words where is he at?
He came with a grin, but he didn't get in;
What do you think of that?

The next senate will consist of about 40 members who may be classed as conservatives. In the house, the Republican majority which, even in this congress has been strong enough to insure party control, will be still greater. Just what "conservative" means for the prosperous future of railroads is the question. One of the latest dictionaries says a conservative is one opposed to change, whereas railroads are extremely eager for that very thing, and they want it in their pockets in the form of a respectable and dignified net return.

Railroad men, in common with many another thoughtful observer of the events of a generation, believe in two-party government for the United States, but they see no occasion for loud and joyous acclaim in the overwhelming victory of either party. History and the roll calls show which of the two nation-savers has created most of the objectionable regulation under which transportation has struggled along. Names are not necessary here because this is not politics. It is a cold and calm consideration of just what blows are likely to be directed at railroads in the next session. As suggested a moment ago, the short session isn't likely to do a thing. Someone said, a year or

two ago—before Mr. Hoover entered the race for the Presidency—that the cabinet should contain an experienced engineer to give advice on questions affecting transportation. It won't be long before one of the world's most successful members of that profession will be seated in the White House. He is strong for waterways. What will he do, with his great influence, for railroads, the automotive industry and aviation?

Of the members of the senate interstate commerce committee, Senators Bruce of Maryland and Mayfield of Texas, both Democrats, were defeated in the election. Reapportionment of the committee, however, may result in their seats not being filled. The death of Senator Gooding, Republican of Idaho, will necessitate the filling of his place at this session.

There is also especial interest in the contest for Republican leader in the senate to succeed Senator Curtis of Kansas, the next vice president. Senator Watson, Republican of Indiana, is assistant leader now and because of experience and length of service is said to be the logical man for the place. Under an unwritten rule Senator Watson, if chosen, would relinquish his place as chairman of the interstate commerce committee and become chairman of the senate rules committee. Owing to the death of Senator Gooding, Senator Couzens, Republican of Michigan, would be the ranking Republican and would be entitled to the chairmanship.

So far as the present short session is concerned, the neck of the bottle will rest in the senate with the house after the first few months marking time until the session is automatically brought to an end in March.

Street Car Good Will Is Important

An ounce of good will is worth a ton of pressure. The Oklahoma Railway Company has found that out. For years Oklahoma City newspapers thrived on a diet of headlines depicting the plight of the local traction interests. The railway company was a storm center of municipal politics under the commission form of government. There were unsolved title tangles, service complaints, a bitter strike, and finally federal receivership.

During the past twelve months a miracle has apparently been wrought. The headlines have a different ring. The street railway company is no longer regarded as a "political agitator". The title tangles to right of way have been worked out in agreement with the new city manager, E. M. Fry, working with a non-partisan council. There is no bus war. A strike threat was quickly headed off. The points of friction caused by freight hauling over passenger lines have been removed by city-company cooperation, in relocating the freight lines through new industrial territory. Agreements have been made affecting automobile parking, abandoned trucks, track extensions, and the railway has come out of the receivership and is spending over a million dollars in expansion and new equipment.

The president, Hubert Hudson, has joined actively in the city's safety drive. Morale of employes has been raised by numerous acts of public recognition for efficient and courteous service. The city manager even obtained a special act of congress to convey certain city-owned property to the railway which had been promised by a previous administration but to which the city could not give a clear title.

"In coming out of the receivership the local railway company performed a feat equalled by few street railway companies in America since the post-war deflation," Manager Fry announced in his annual report. In this report, the first ever issued by this city, the manager discussed sympathetically the railway's problems and the city's needs, devoting two pages to the railway company in the general presentation of the city's traffic conditions.

The railway is getting something more than "good will advertising." It is actually getting "good will". It is boosting the city, working in close cooperation with the city planning commission, the safety council, the traffic commission. It is carrying 52,000 persons daily, and has demonstrated that its rails are absolutely necessary to Oklahoma City.

Rigid economy is still necessary but the company is making the grade. It has attracted outside capital, but its offices are in the hands of the city's recognized civic leaders. This change from the old "foreign ownership" and "outside dictation" has stimulated public confidence. The board of directors is composed of men whom citizens respect as having the community's best interests at heart. One member of the board is chairman of the city planning commission.

An idea of the company's growth is shown in the extension of the city's lines from five miles of track in 1903 to 120 miles of city and suburban lines in 1920 and 175 miles of city, bus, interurban and freight lines in 1928. During the first five months of 1928 the total number of revenue passengers increased 764,890 over the same period for the preceding year. Freight car miles for the same period increased 28,425 miles. Public confidence has provided a strong rope and a straight pull for the Oklahoma Railway Co. during 1928. The adoption of the city manager form of government was the opening wedge.

Approximately 28,430,000 cubic yards of ballast were purchased in 1927 by the railways, an increase of 11.8 per cent over 1926. The total cost in 1927 was $23,965,000.

Cooperation means so to conduct yourself that others can work with you.—Lucius E. Wilson.

The Queer Things of November

A Ford De Luxe Limited Train on the Florence & Bartlett R. R. in Texas, a Short Line That Does a Good Business. President Cromereons at the Throttle.

Another Short Line Bobs Up

By Charles N. Tunnell

WHEN Lee Cromereons pulls out with his loaded flat cars, there is no long shrill whistles; instead there is a feeble, humble honk-honk. Cromereons is the train crew for the Florence & Bartlett Railroad. Although few engineers would think of stepping to the front of their engines to crank it up for the run, this is just what Cromereons does, for his locomotive is a Ford truck of the cranker type. But nevertheless, Cromereons is a railroad engineer for he operates over the Florence & Bartlett. He is also brakeman, mail clerk, conductor, announcer, and numerous other things that go to make a complete railway service, for he gives just such a complete service even though his train is operated with a one man crew.

The Florence & Bartlett is tucked away in the heart of central Texas. The average tourist or person riding across the state on one of the fast limited trains would never know it was there. Or, if the tourist discovered it he would see nothing more than the slim line of steel stretching away across the prairie dotted with prosperous ranch and farm homes. This railroad covers 23 miles from Florence, Texas, a town of 300 or 400 population, to Bartlett, which is a little bit larger.

At Bartlett, this line connects with the Katy which in turn ties it to the commerce of the world. When this short branch was discontinued in 1920 after failing to produce enough shipping to justify the operation of a daily train, Tom Cronin took it over and began to operate a Ford truck on the rails. Mr. Cronin having died, the property is now owned by his heirs, while Cromereons has the job of keeping the Ford train making the daily run on schedule time. Two flat cars are used in addition to the truck bed for hauling freight and express, while the cab of this truck affords a place for hauling the mail daily as well as express.

As this is a cotton farming section, practically all the cotton ginned within the section goes out over this railroad. The flat cars and the truck bed are loaded high with bales averaging 500 pounds apiece and making an average load of 10,000 pounds of cotton during the ginning season for the daily run. The Ford-truck-locomotive is equipped with flanged car wheels to fit the rails, and makes it easy to haul many times the weight of freight that would be possible on a regular highway with the truck.

In keeping with the policy of a complete railroad this line offers passenger service. But as automobiles are common, there is seldom any occasion to hook on the passenger coach, a small car equipped with seats and a top distinguishing it from the flat cars. This passenger car puts one more in mind of the carriages of years ago. With but few passengers, the coach is seldom used as this engineer finds room in the cab for the women and allows the laborers and other passengers to ride on one of the flat cars.

Where Are the Buggies Now?

Horses are queer creatures. When the first automobiles appeared horses used to jump sideways or straight up and over backward when they met one. Now they are scared stiff at the

sight of a buggy such as they used to pull only a few years ago.

An Ontario, Cal., a D. A. R. chapter entered a buggy in the Armistice Day parade. The women couldn't find a horse to pull it, so they attached it to an automobile driven by one of the members. "George Washington and his wife, Martha" rode in the buggy. After the parade it was parked near the Helen Dyer home for a few days.

J. F. Wyon drove past the place with a team of horses. The steeds saw the buggy and doubtless thought it was a trap made by Satan himself. In their haste to run away they fell to the pavement, tangled themselves up in the harness, tore the leather thongs to pieces and received many and varied bruises and injuries.

The buggy was shielded from the eyes of the frightened horses and they were soothingly led past it and taken home for first-aid treatment.

The Edwin Natural Bridge in Southeast Utah. Reached by Stage and Pack Train from Thompson, Utah, on the Denver & Rio Grande Western Ry.

His Forgetfulness Cost $130

Papa Mecartney of Chicago took his wife, three children, a nursemaid, and eight suit cases and hampers of pasteurized specially prepared iced milk for children and such things down to a train bound for the seashore.

He kissed them all around and went back to the office. It was when he reached into his pocket for a cigarette that he found the keys to the eight suit cases and hampers. The train had gone. And Junior, aged 1, must have his bottle within an hour.

Nothing to do but charter a plane, chase the train, overtake it, board it, hand over the keys, kiss the family good-by again, and return to the office. Which papa did. It cost him $130.

Arrested For Burning His Car

Perhaps you have seen a golfer miss an easy putt and then break his putter across his knee or throw it into a creek? Herman Weller, of Los Angeles has such a disposition. Because he couldn't start his car one day, last month, Weller set fire to it in the street and let it burn. Then he was arrested, taken to court and sentenced to 60 days in jail for burning trash and leaving junk in the street. The court suspended sentence when Weller promised to sell the next obstreperous car to a junk man.

The Modern Thrill

At Flagstaff, Ariz., one day last month, Jimmy Hedrick, a 16-year-old boy placed an iron bar across the Santa Fe railroad tracks because he thought it would be "great sport to derail a train." The obstruction was discovered by a section crew, and removed in time to prevent an accident.

A Baby Bumper

Dan Yovetch, 14-month-old son of Mr. and Mrs. Michael Yovetch, suffered only a bumped head at Kansas City one day last month when he started to crawl across the Missouri Pacific tracks in front of an approaching switch engine. The front end of the engine had passed over the boy before it was stopped, and he bumped his head when he raised up to see what the commotion was all about. A negro who saw the boy crawl on to the track flagged the engine.

Railway Women in Japan

The first step toward the realization of woman suffrage in Japan was taken recently by the imperial government railways. The officials decided to grant all employes, regardless of sex, who are more than 18 years old, the right to vote for the election of members of the railway's committee on improvement and treatment of employes. Suffrage leaders believe that this innovation will have a favorable effect upon the country at large. There are about 10,000 women employes of the railways who will thus vote for the first time in their lives.

The best memorial for a mighty man is to gain honor ere death.—Beowulf.

Among the Men Who Do the Work

Engine Terminal of the Southern Railway at Macon, Conveniently Placed With Respect to Freight Classification Yards.

THREE MEN who have been riding trains between home and business on the Boston & Maine almost daily for more than 60 years, the road's oldest commuters; three engineers who have been operating locomotives since the days of the wood-burners, and three conductors, grown gray in the public service, dating back three generations, were honor guests of President George Hannauer at the dinner with which the New North Station was formally opened and dedicated November 14.

The commuters were William D. Brackett of Stoneham, former shoe manufacturers, 64 years a commuter; Henry H. Savage of Wakefield, musical supply merchant, 62 years a commuter; and Charles H. Tuttle of Salem, certified public accountant, 62 years a commuter.

The enginemen, each of them the oldest in continuous service on one of the divisions entering the North Station, were Charles Hamilton of Portland, Me., 73 years old, 57 years in service; Warren E. Emerson of Concord, N. H., 74 years old, 60 years in service, and John G. Allison of Ayer, 77 years old, 57 years in service.

The conductors, similarly veterans of longest continuous service on the Southern, Fitchburg and Portland divisions, were R. H. Fuller of Wilmington, 72 years old, with the road 54 years; George W. Knowlton of Somerville, 66 years old, with the road 54 years, and Thomas T. Lyon of Marblehead, 78 years old, with the road 60 years.

The Southern's New Shops at Macon

The Southern Railway System has recently completed at Macon, Ga., an engine terminal which was places in service recently. The terminal was constructed on what is known as the Southern Railway Pine street property and is conveniently located with respect to both the Southern's freight classification yard and the passenger station of the Macon Terminal Co. The new engine terminal consists of a 20-stall roundhouse with office

and auxiliary buildings, including machine shop, smith shop, pipe and tin shop, carpenter shop and air brake and electric shop; 100-foot electrically operated turntable; mechanical coal handling plant of 1,000 tons capacity, with two cinder conveyors, each serving two tracks, and two 100-foot inspection pits; 100,000 gallon water tank; boiler washing plant; store and oil house, two wash and locker buildings for the accommodation of employes; and other smaller structures and material platforms. Water supply and drainage systems, compressed air and electric power lines, and approximately four miles of new track were constructed in connection with the terminal.

Cleans Ballast and Puts It Back

Word comes from the Pennsylvania Railroad that as a result of years of research and experimentation a mechanical device for the rapid cleaning and renovating of track ballast has been developed, and has withstood successfully the most thorough tests of actual use under conditions of operation.

The new device propels itself after reaching the point of operation, excavates the ballast from the track, removes the dirt, returns the stone to the track and levels the renovated ballast to standard profile. It has been in service on the middle division.

The machine has been designed jointly by engineers of the Pennsylvania Railroad and of the Industrial Brownhoist Co. of Cleveland. It cleans ballast at the rate of 1200 feet of track every hour. More extended use of machines of this type is expected to reduce materially the cost of track maintenance, under the company's high standards.

Ballast cleaning is a most necessary part of the work of track upkeep. With hand tools alone, it always has been a laborious and expensive task. Therefore, the creating of a machine to do this work satisfactorily has been an important objective of the Pennsylvania Railroad's engineering staff. The results with the new device, it is believed, justify the conclusion that success has been achieved.

From the viewpoint of passengers, comfort in riding is one of the most appreciated benefits of keeping track in good order. This requires, among other things, a well drained roadbed. In the course of time, stone ballast, due to the inevitable accumulating of foreign substances, ceases to provide sufficient drainage. Unless its properties are restored by cleaning, soft spots result in the track, tending to increase the vibration and sway of moving cars.

The machine now being used by the Pennsylvania consists of a combined power plant-excavator car, a combined separator-distributor car and a system of flight conveyors for handling the dirt removed from ballast. The power-excavator car carries a 300 horsepower gasoline-driven generator as the main power plant, and is equipped with two excavator buckets, for removing material from

Something Turning Up Every Now and Then to Save the Backs of the Men Who Do the Work. This is the Pennsylvania's New Ballast-Cleaning and Replacing Machine. Not Quite So Many Men Needed, Either.

track, as well as suitable receiving hoppers and belts for conveying it to the separator-distributor car. Material which has been delivered from the conveyor belts of the power plant-excavator car to the separator-distributor car passes over an electrically operated vibratory screen. In this manner, the dirt and stone ballast are separated. The stone passes into a distributing hopper, whence it is returned to track and leveled to standard track ballast contour by means of a profiling board. The dirt which has been separated is then delivered to the flight conveyors which carry it to a train of receiving cars immediately behind the ballast cleaning units. As these cars are in turn filled, they are hauled to designated discharging points and the dirt used for rough filling or other construction purposes to which it is suited.

The ballast cleaning machine propels itself during the excavation of ballast from the track. The propulsion is obtained by means of a winding drum, with a cable attached to the work train locomotive, which precedes the ballast cleaning units approximately 500 feet. The locomotive, with brakes set, serves as an anchor post toward which the ballast cleaning train pulls itself during the successive advancements made between excavations by digger buckets.

Sixty Years On Duty

John Scanlon of Scranton, Pa., who went to work as a water boy for the Lackawanna Railroad in May, 1862, has been honorably relieved from active duty and pensioned by that company after 60 years and four months continuous service.

For more than half a century Scanlon rode in a locomotive cab, first as a fireman, later as an engineer. No record of his mileage was kept but, according to the company, he probably averaged 100 miles a day as a minimum, which means that his locomotive rides totaled 1,825,000 miles—equivalent to seventy-three times around the world.

Turning the Other Cheek

The Southern Pacific has set aside free parking areas adjacent to 44 passenger stations in California. The spaces will be reserved for the company's patrons using the trains. It is hoped that all who use the parking privilege will buy tickets for train rides.

The Conductor's Creed Safety First

For one hundred years passengers have been transported by rail. During all this century of rail transportation I have been responsible for the safety and comfort of those who have entrusted themselves to my care. Insofar as the passenger is concerned, I am the general manager of the railroad, praised for its accomplishments and responsible for its failures. In all these one hundred years I have never shirked my responsibility. My first thought has been for the safety of my passengers and I have been ever-vigilant in their protection regardless of the effort, hardship or personal danger that may have been involved.

Second only to my care for their safety has been my endeavor to assure passengers' comfort and convenience. Appreciating their patronage, I have treated them as I would treat the visitors in my home; that is, I have endeavored to have them realize that they are welcome guests, and that as their host it is incumbent upon me to provide for their comfort to the fullest extent of my ability. I welcome the passenger with a cheery greeting, see that he and his belongings are properly cared for, and that the trip, which may be an event in his life, is made as pleasant as it possibly can be made.

It is to the honor of my calling that unaccompanied women and children are entrusted to my care, and I cheerfully recognize this responsibility by making their care my especial purpose.

It is my hope that on the completion of his journey the passenger will say. "This is the best railroad on which I have ever traveled" because I know that that will mean that I have fulfilled the tradition of my profession—I am a successful conductor.—Wm. S. Wollner, Gen. Safety Agent, Northwestern Pacific R. R. Co.

Chiropractors Make An Adjustment

J. S. Brown, brakeman on D. & R. G. W., train No. 7 out of Denver was riding the rear platform one day last month when he heard a rail crack. Bringing his train to a halt he ran back just in time to flag a special carrying 600 chiropractors going home from a convention, and a wreck was prevented. The chiropractors made up a purse for the brakeman.

On Saturday Night?

An interesting item of railroad news comes from Vinogradnaya, in the Northern Caucasus. It is 50 miles from that station to the first town owning bath tubs. More than 150 railroad workers and officials make the trip to Georgievsk once a week. They come home singing. Doubtless on account of the bath.

You Never Can Tell

Railroading is too tame and unexciting for Courtland T. Hill. Courtland is the 24-year-old son of Louis W. Hill, chairman of the board of directors of the Great Northern Railroad, and grandson of the late James J. Hill, "Empire Builder." He is going to join the Northwest Mounted Police who, as you may have noticed in the motion pictures, "always get their man."

When young Hill was graduated from Yale where, of course, life is pretty exciting, he put on overalls and swung a sledge in stifling hot locomotive boilers, shoveled clinkers and cinders out of ash

pits, wiped engines, greased bearings, and performed other drab duties certain to make a hit with a college man. It wasn't long before Courtland decided that railroading was a flop.

His elder brother, Louis, Jr., after graduation from Yale and special study at Oxford, started work on his father's railroad as a section hand. He worked months, became brown and hard and capable. At the end of his first job his section boss said Hill was ready for work on any section in the country. Louis, Jr., then worked in enginehouses, shops, freight warehouses, solicited freight and is now trainmaster at Butte, Mont.

The Southern's New Home

The Southern Railway System's family in Atlanta has been increased by 1,133 employes with the move from Washington of the offices of auditor of freight accounts, the auditor of station accounts, the auditor of passenger accounts, the general freight claim agent (overcharge), and the superintendent of car records. The transfer of these large offices was accomplished with a minimum loss of time and interference with work, in accordance with plans worked out in advance with great care under the direction of Comptroller E. H. Kemper. They are now housed in the Southern's enlarged office buildings in Atlanta, and have been equipped with new steel furniture of the most modern design. To provide space for them, five floors, 450 feet by 50 feet, were added to the three-story building which formerly housed only the local freight agency and the stationery department and two floors, 237 feet by 50 feet, to the six-story building in which the other offices at Atlanta were situated. A bridge over Nelson street which separates the two buildings was built to connect the fourth, fifth, sixth and seventh floors. The combined buildings now have 264,000 square feet of floor space and are among the most up-to-date buildings in Atlanta.

North End of the Southern Railway System's New Office Building at Atlanta. Station Plaza in the Foreground.

This Train More Than a Mile Long

What is said to have been the longest and heaviest grain train was recently hauled from Stoughton to Arcola, Sasakatchewan, by the Canadian Pacific Railway. This train, which is believed to be the record freight train for any class of merchandise, had 135 loaded cars.

The long line of box cars moved between the two stations, a distance of 25 miles, in 55 minutes. When the engine reached the switch at Arcola the train waggled its tail beyond the mile board in the yards, for its overall length was something more than 5,280 feet.

It was, railway officials said, the first loaded grain train of more than a mile in length to operate anywhere in the world.

With 135 loaded box cars, the train had in addition a caboose, a water car and engine. The gross weight was 8,725 tons and the contents of the cars reached a total of 202,000 bushels, or the produce from 10,000 acres of farm land yielding an average of over 20 bushels to the acre.

In their effort to establish a new record for heavy trains, the railway officials enlisted the aid of nature, taking advantage of a heavy northwest wind to stage the run.

The work an unknown good man has done is like a vein of water flowing hidden underground, secretly making the ground green.—Carlyle.

Better to die ten thousand deaths than wound my honor.—Addison.

This Handsome Structure Was Dedicated by the Boston & Maine November 14 With Elaborate Ceremonies Attended by the Great and Near-Great.

THE NEW North Station of the Boston & Maine, at Boston, dedicated with imposing ceremonies the evening of November 14, stands today, as President Hannauer said in his address, the central unit of a great terminal development to cost ten million dollars or more. Some of this project already is under construction. Governors and mayors, railroad officials and other prominent persons from distant states were in the large throng attending the dedication. The new station, it is declared by competent critics, ranks with the finest in the country in attractiveness and all round utility and convenience for the millions certain to use it in the coming years.

The completion of the station by the Dwight P. Robinson Co., contractors and builders, in a year to a day since the work was started and announcement made by the Boston & Maine, has received much favorable attention because of the fact that it was accomplished without interruption to train service, and without seriously inconveniencing the 24,000,000 persons who pass in a year through the terminal.

The actual opening of the station came a few moments after the lights in the waiting room, serving temporarily as a dining hall, were extinguished. First, as President Coolidge pressed the electrical key in Washington which closed a circuit joining the new station and the White House, there flashed on a golden monitor light over the speakers' table. This stood out alone for a dozen seconds then, unveiled and illuminated from within by the Presidential touch, a huge white frosted cake four feet long, reproducing in detail the outlines of the station, stood out from the darkness with its windows glowing rosily, symbolizing the fact that the terminal had definitely been delivered to public use.

It is a peculiar fact that men gaze at the world's most marvelous buildings often without a thought for the brains, the constructive ingenuity, the tireless determination of engineers, the contractors, the men who actually did the work. But this lack was not apparent in the great gathering at Boston invited to the dedication of this fine station. Here, they knew, was a structure standing on historic ground where some of the Republic's first struggles were fought. These appreciative guests wondered over the planning necessary, the extreme precautions demanded to put up a station of such proportions without serious delay to business, and they expressed their admiration in their addresses.

The station rose with amazing speed. Less than a year after the wreckers began to tear down the old North Station which it replaced, it stood essentially complete—a massive structure of steel, concrete and brick, resting upon countless piles driven deep into the earth.

Since erection had to go on even while passengers arriving and leaving on 360 trains daily were be-

ing cared for, the gigantic task was done a section at a time, literally over the heads of constantly passing throngs protected by barricades and wooden tunnels. Despite these handicaps, the new waiting room and much of the concourse were turned over to the use of the public in eight months after the first pile was driven, and in the next three months—between August 20 and November 14—the remaining portion of the old station was razed and the major station project carried to completion.

The spacious concourse extending and paralleling the waiting room now entirely enclosed and heated, attracted much interest. Guests entering from Causeway street had the first unbroken view of the impressive front of the station with its collonaded, recessed sidewalk, its seven broad arches and the massive end pylons which lead the eye upward 100 feet from the widened street. And looking up the guests could see the great Boston Garden, seating 17,500 persons above the station.

In his address President Hannauer said the new station comprises only that part which could be made self-supporting.

"The completing stage," said he, "calls for lengthening of the station tracks, construction of permanent train sheds, elimination of the antiquated and unsightly trestles and relocation of the Charles River channel, the installation of a modern signal system, new drawbridges and improvement of the station platforms.

"These added improvements will run into several million dollars. They will not be self-supporting and will be constructed primarily to afford to the traveling public better accommodations and more comfort. Realization of these further improvements to a considerable extent will depend on the Commonwealth of Massachusetts, and favorable and sympathetic treatment on several of these matters."

From Toastmaster Thomas Nelson Perkins, as chairman of the executive committee of the Boston & Maine, from President Hannauer and from several of the governors came expression giving to Homer Loring, former chairman of the board of the Boston & Maine, credit for the conception of the New North Station, and for advancing its construction. Mr. Perkins saw in the great gathering an expression of good will from the people. "I should like," said he, "to see the railroads and the communities and the industries served by the railroads sit down together with the cards all on the table, face up, and try to work out the problem which is the problem of New England. We of the Boston & Maine are ready to do our best to this end.

"Too little in the past have the railroads understood that their interests and the interests of the communities they served were the same. Too little have the communities understood that their interests and the interests of the railroads are the same. Too little have we all realized that unless the community is successful the railroad cannot be, and unless the railroad is successful the community cannot be. The two are mutually interdependent."

An item of special interest, quite apart from the structure itself, is the announcement that there will be no 'Red Caps" in the station. They will be "Blue Caps," and they are to be called "Attendants." That is to say the company will call them attendants. If the company can make the traveling public use anything except "Red Caps" another good story will be written about it.

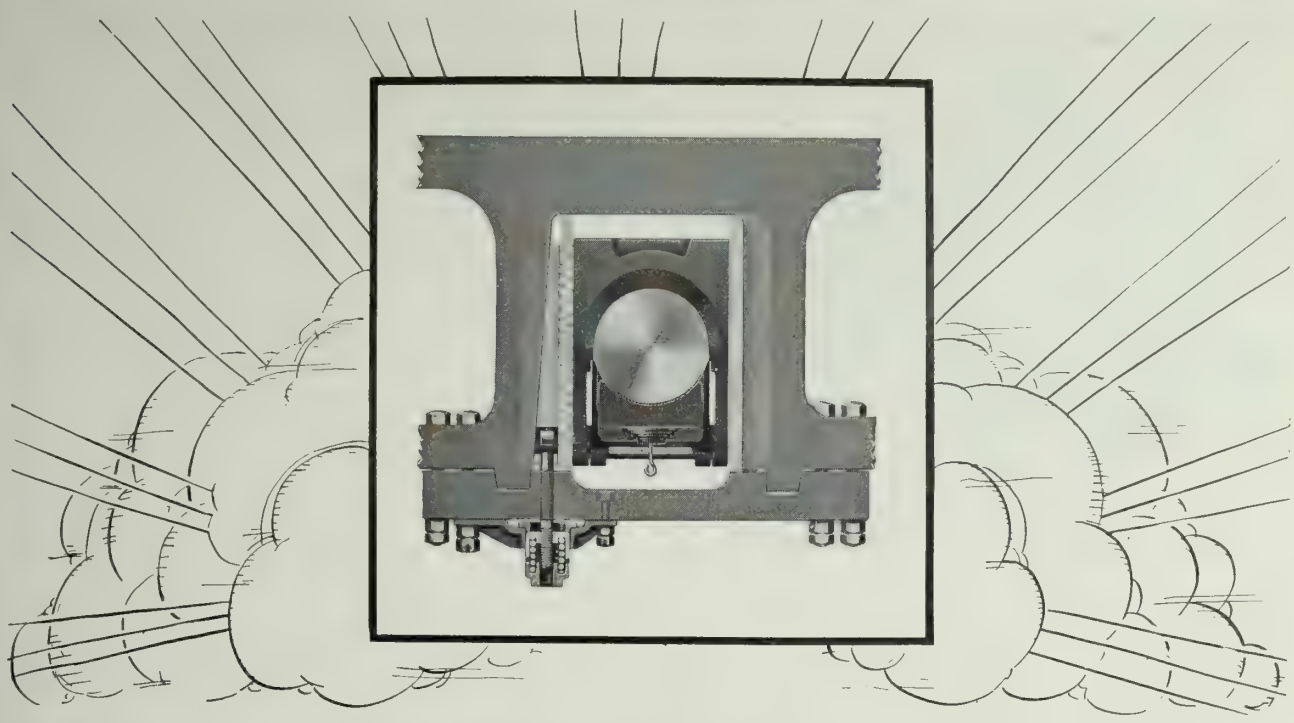
The Uses of Compressed Air

We don't know a great deal about compressed air. Mechanics and mechanical engineers doubtless know more than any of us. But even these wise men learn occasionally that their knowledge is confined very largely to their own particular job.

A compilation in booklet form issued recently by the Compressed Air Society describes what the author says is only a part of the list of applications of compressed air. These applications number 441. Compressed air applications in the railroad business are given in this order:

Starting fires in locomotives.
Operating pneumatic hammers and drills.
Cleaning flues.
Calking boilers and tanks.
Air hoists, lifts and jacks.
Air brakes.
Turn-table motors.
Drilling holes for bond wires.
Placing and removing track nuts.
Operating cement guns.
Replacing tubes in locomotive boiler.
Operating third rail ice scraper.
Delivering sand and fuel to locomotives.
Laying new track.
Cleaning switches.
Crossing gates.
Switch and signal systems.
Sand blast for removing paint, cleaning castings, etc.
Pneumatic sand rammers.
Paint and whitewash spraying.
Cleaning cars, furnishings, etc.
Transferring oil.
Pumping water.
Track sander.
Valve setting machines.
Screwing up fish plates.
Driving nails and spikes.
Wood boring.
Tie tamping.
Pulling spikes.
Pneumatic saws trimming car roofs, etc.
Wire brush, cleaning cars.
Cleaning and repairing coaches and Pullman cars.
Charging air tanks of the braking system.
Testing air brakes of freight cars.
Sounding call whistle.
Raising nap on plush seats.

The total railway purchases of lubricating oils and grease, boiler compound and waste in 1927 was $23,280,000, a decrease of 13.8 per cent under 1926. For the various non-ferrous metal products needed in railway operation, such as brass, copper, zinc and lead, the railways spent $55,668,000 in 1927 or 8.8 per cent less than in 1926.



"Lubrite Wedges" Help Easy Riding

A long run often exhausts the lubrication of shoes and wedges despite the best efforts of the engineman to get oil where it's needed.

With Franklin Automatic Adjustable Wedges using "Lubrite" on all rubbing surfaces, a constant condition of lubrication is maintained regardless of the length of the run.

The engine always rides the same, so far as shoes and wedges are concerned.

"Lubrite" removes the need of oiling at roundhouse or on the road. It is a self-lubricating shoe and wedge material that will result in substantial savings in oil and labor. No attention is needed between shoppings.

FRANKLIN

RAILWAY SUPPLY COMPANY, INC.

The Locomotive Booster Capitalizes Idle Weight and Spare Steam

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO MONTREAL

The Fairmont Model A-5 Built to Pull Trailers With 50 to 200 Men. This Motor Is Economical Also for the Little Jobs.

A New Motor Car by Fairmont

AN extra gang of 150 men at 40 cents an hour costs a dollar a minute. Railroad men have to watch such costs because, for one thing, they are uneconomical and therefore unnecessary, and for another they swell the cost of maintenance of way out of all proportion to other things. Work trains, too, are costly and when possible should be avoided, as recommended in the recent convention of bridge and building men at Boston. The way out of the woods seems to be on the Fairmont's new Model A-5 extra gang motor car. This model, with six trailers, has the power and speed to carry the gang to work many minutes sooner than motor car equipment heretofore used. Ten minutes saved four times a day figures $40 or $1,000 saved every month.

The new A5 is engineered and built like a heavy-duty motor truck. It is equipped with a powerful 4-cylinder, Red Seal Continental engine, with power water pump and extra large radiator which allows the engine to develop full power continuously without overheating; three speed all gear transmission, with multiple disc dry clutch; pressure feed oiling system; automatic spark control and other improvements which have proved their efficiency in heavy-duty operation.

"This new motor car," said W. F. Kasper, vice president in charge of engineering for Fairmonts, "really is the answer to the demand for more power and the resulting economy for hauling gangs of 50 to 200 men.

"An important reason for the great performance of this new A5 is gearing the engine 'just right' for the load it is to pull. Today it may be 12 tons on six trailers, tomorrow two tons on one trailer. The choice of three gear reductions insures a car speed at which the engine can develop sufficient power to handle any size load easily and economically. The car has three speeds either way. This enables the driver to run the car backward with all of the three forward speeds without turning it on the track.

"The frame for a car of this type must have well-balanced strength, and naturally every type of frame known was tested. A steel girder frame designed by Fairmont engineers proved the ideal structure. Its super-strength and rigidity are vital necessities for strength and power. The body is detachable and can be lifted clear of the frame by removing four bolts. All operating levers, fuel and ignition connections remain intact when this is done."

Metal Ties Making Good On the D. & H.

Another stimulus to the consideration, by railroads, of the substitution of metal for wooden railroad ties is expected as a result of the application of welded metal ties to switches and cross-overs by the Delaware & Hudson Railroad. This company has recently completed the rearrangement of the spur which connects its main freight line with the General Electric plant at Schenectady, and all the old wooden ties were replaced by the metal variety.

The feasibility of metal ties was suggested by William Dalton of the General Electric Co. early in 1927. Mr. Dalton announced at that time that his company had designed automatic welding machinery which could produce metal ties at a lower overall cost than that of the wooden type. The Delaware & Hudson pioneered in the new field by installing machinery at its Colonie, N. Y., shops for welding metal ties, and by installing a section of track in its freight yards at that point utilizing welded metal ties fabricated from worn rails.

Speed of Motor Cars

Speed drivers of automobiles realize how fast they are covering ground, even when driving at a moderate rate of speed. It cannot be doubted that many accidents are caused by this failure to know with what high speed many feet are traveled per second of time. A table reducing speed to feet per second shows: A motorist traveling—

10 miles an hour covers 14.66 feet a sec.
15 miles an hour covers 22 feet a sec.
20 miles an hour covers 29.33 feet a sec.
25 miles an hour covers 36.66 feet a sec.
35 miles an hour covers 51.33 feet a sec.
40 miles an hour covers 58.66 feet a sec.
45 miles an hour covers 66 feet a sec.
50 miles an hour covers 73.33 feet a sec.

UNITED ENGINEERS & CONSTRUCTORS

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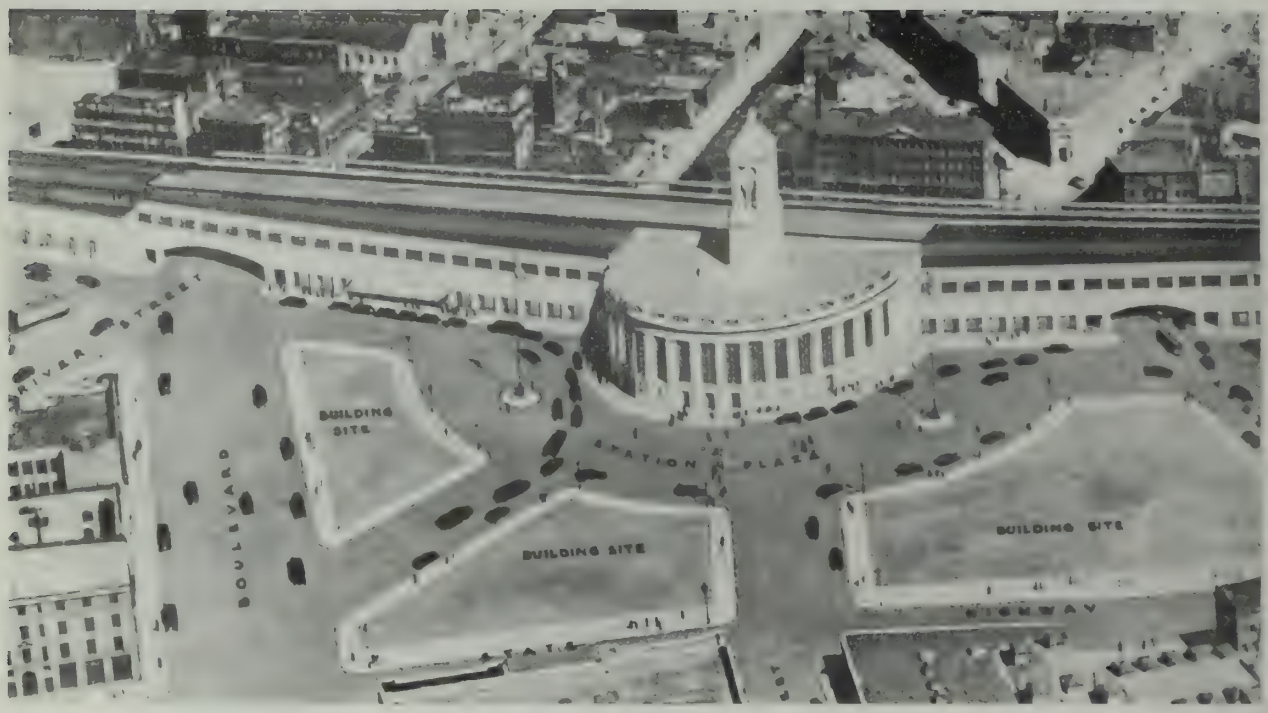


An Aerial Photographer and An Artist Cooperated in Making This Fine Layout Showing the Pennsylvania Railroad's New Station at Newark, N. J., As It Will Appear.

The News of the Month

What's Been Going on in Transportation, Railroads, Automotive, Supply, Aviation

A GREEMENT was reached November 15 by the Newark, N. J., city commissioners, the Pennsylvania Railroad and Public Service Coordinated Transport for an improvement project which includes a new Pennsylvania station in Market street, extension of the tubes to Parkhurst street and the utilization of the Morris Canal bed for a trolley subway. The accord came at a conference at the city hall after both the Pennsylvania Railroad and Public Service offered terms more favorable to the city. The Pennsylvania offered to assume the additional cost in its station plans which will be necessitated by reason of the subsurface trolley station under it for the canal railway trolleys. Public Service, through its president, Thomas N. McCarter, offered the city an annual rental of $125,000 instead of the $100,000 offered at a preceding conference.

The Pennsylvania refused to pay the cost of widening Commercial street from Mechanic street to the Passaic River, estimated to be about $1,200,000 and the city commission did not press the point. Although there had been some inclination by the commissioners to have the minimum length of the lease with Public Service for the canal railway shortened from 32 years that point was also waived when Mr. McCarter declared his company would not be willing to enter into any shorter term lease.

The agreement was the end of negotiations lasting several years. It means the city will have a new station, the tubes extended and an improved transportation system; that the city will take a first rank importance in the Pennsylvania Railroad system; that new streets will be created to handle the increased traffic because of the larger demands; that many of city's trolley cars will be taken off the streets, and that improved trolley and bus terminals will be created.

Division V., at Los Angeles in June

For the first time in its history, the secretary, V. R. Hawthorne, says Division V., Mechanical of the American Railway Association will meet next June west of Chicago. The next convention will open June 25 at Los Angeles. Mr. Hawthorne was in the city a few days ago making preliminary arrangements. He came accompanied by O. S. Jackson, executive committeeman of the association and general superintendent of motive power and machinery of the Union Pacific Railroad. The big meeting, Mr. Hawthorne said, would bring at least 1000 delegates and these with their families, and many visitors and supply men would mean a crowd of about 5,000 persons. Headquarters has been established at the Hotel Alexandria, and there the secretary met a few days ago with representatives of the Chamber of Commerce and other civic bodies to arrange for the four-day schedule of entertainment.

"This will be the first time in the history of our association, which is the oldest of its kind in the United States, that an annual meeting will have been held west of Chicago," he said. The meeting will close the evening of June 28.

Air Congress for Dec. 12

Delegates from 54 of the leading nations of the world will assemble in Washington Dec. 12, 13 and 14 for what

SELF-PROPELLED COMPRESSOR and "STRAIGHT BACK" TIE TAMPERS

On The Job

Many railroads are using these units because of their convenience, speed and reliability. The standard CP Compressor is mounted on a truck frame carrying flanged wheels with Timken roller bearings, transverse shifting wheels and winch, air-operated lifting jacks, lifting bale and a roomy tool box. The gasoline engine that operates the compressor also propels the car at a speed of 12 to 18 miles per hour, depending upon its size. The compressor is furnished in sizes of 100, 160, 250 and 310 cu. ft. per minute displacement. The CP Tie Tampers have several interesting features that are fully described in folder No. 1646. Details of the Self-Propelled Compressors are given in Bulletin No. 789.

Chicago Pneumatic Tool Company

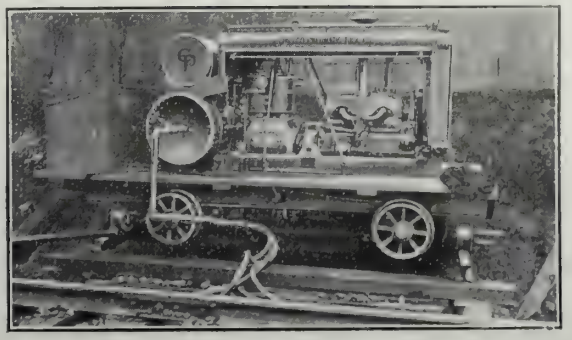
Railroad Department

6 East 44th Street
New York

1004 Mutual Bldg.
Richmond, Va.

310 S. Michigan Ave.
Chicago

J-293



is heralded as the greatest commercial aviation congress ever proposed. Coming at the direct invitation of President Coolidge the delegates will spend three days discussing problems pertaining to aircraft in commerce and trade at the International Aeronautics conference. Saturday, Dec. 15, the conference will attend aerial exhibitions at the army and navy air fields in Washington, and on the following Monday will go to Kitty Hawk, N. C., to participate in ceremonies commemorative of the 25th anniversary of Orville Wright's first flight.

The foreign delegates will go to Washington direct from Chicago where they will attend the International Aeronautics Exposition, under the auspices of the aeronautical chamber of commerce. The visiting delegations will also be entertained at Dayton, O., where the chamber of commerce and the city is celebrating the 25th anniversary of the first successful flight in a power driven craft made by Orville Wright at Kitty Hawk, Dec. 17, 1903.

Roads May Turn to Motors

The possibility that railroad and banking interests, having acquired control of the Adams, American and American Railway Express companies may link them into a $200,000,000 concern which would be likely to start a motor freight and container-car service is being watched attentively in New York.

W. B. Storey, president of the Atchison, Topeka & Santa Fe and chairman of the uniform express contract committee of the Association of Railway Executives, is quoted as disclosing that the charter of the American Railway Express Co. is for sale and that it may be used as the basis of a trucking business. He added that it possibly will be the basis of a container-car service. Mr. Storey indicated that if the roads do not purchase the charter the company itself may start a trucking service.

Special License Will Not Apply

The first round in the Idaho State Truckmen's Association against the special license law of 1927 has been won by the truckmen, and the state department of law enforcement has agreed to refund the license fees paid, upon the withdrawal of the suit by the association. The second round will be fought, presumably, when the Idaho legislature of 1929 is asked to enact another simliar measure that will conform to constitutional requirements.

The special fees required by the law amounted to an average of $300 exclusive of the four-cent gasoline tax which the state imposes upon all motorists as a road improvement measure. The total was held by the truckmen to be confiscatory and therefore unconstitutional.

A test case was brought in the federal district court, and the law was upheld. In the appeal to the circuit court of appeals at San Francisco, however, that body held that the law was constitutional in so far as it applied to common carriers, but that the truckmen were common carriers in the application of the law, did not follow. If truckmen are at liberty to refuse the tender of business, they cannot be defined as common carriers, the lower court was instructed. Whether Idaho truckmen possessed that liberty of action, the district court was ordered to ascertain.

Terminal Construction in Jersey City

First steps in the launching and consummation of the $50,000,000 three-unit Pennsylvania Railroad warehouse terminal development in downtown Jersey City, were taken Nov. 17 when the officials filed plans for the project with the city engineering department. The development has been labeled "The New Pennsylvania Terminal in Jersey City" and will be erected in three units, the first of which will cost $20,000,000, to be started immediately and be ready for occupancy on September 29, 1929.

The new Pennsylvania terminal will consist of several units each one complete within itself. The plans provide for free and bonded storage warehouses, factory lofts, office and display rooms, cold storage and steamship piers, so coordinated as to give the public the most economical terminal facilities in the Port of New York.

Great Western Makes New Record

During October, 1928, the Chicago Great Western Railroad established a record of 51 miles per car per day. This figure has never been surpassed by the Northwestern group of railroads and has been equalled or excelled by only one or two of the transcontinental systems of the United States.

To arrive at miles per car per day, all revenue cars are taken into account, whether loaded or empty, moving or standing and regardless of physical condition.

New Jersey After Grade Crossings

The New Jersey state highway commission has decided to invoke the assistance of the public utilities commission in settling disputes with railroads in eliminating grade crossings and widening and constructing bridges where the highway commission obtains a new right of way on both sides of the railroad. Approximately 34 separate petitions will be filed with the public utilities commission relating to crossings in all parts of the state. One of the main difficulties experienced by the highway commission relates to dividing costs between the state and the railroads. The commission has felt that in many instances the railroads have attempted to saddle too much of the burden on the state. Attempted negotiations with the railroads have resulted in long delays, sometimes holding up highway improvements indefinitely.

20 Millions for Electrification on Reading

Electrification of the major portion of the Reading Railroad in the metropolitan area of Philadelphia, with probable ultimate extensions to New York, Bethlehem and through the Schuylkill Valley territory, was announced by Agnew T. Dice, president of the Reading company.

The directors have given final approval to plans of the railroad management for immediate expenditure of $20,000,000 for electrification of the lines from Reading Terminal to Landsdale, Glendale to Hatboro, Jenkintown to Langhorne and the Chestnut Hill Branch. The route distance is 49.9 miles with 110 miles of track.

A. E. R. A., at Atlantic City

The 48th yearly convention of the American Electric Railway Association will be held in the new Atlantic City Municipal Auditorium, Atlantic City. September 28 to October 4, inclusive 1929. In connection with the convention, the operating and manufacturer members of the association will hold the usual exhibit and this also will be in the new Municipal Auditorium. Diagram showing the exhibition spaces will be available for distribution to the membership about May 1st, 1929, together with applications for space.

M. P. for More Block Signals

The Missouri Pacific has authorized the installation of 271 miles of additional automatic block signals, installation to cost approximately $1,135,000, according to L. W. Baldwin, president. Lines to be protected by the new installation include the main track from Kansas City to Atchison, Kas., 45 miles, and from Osawatomie to Coffeyville, through Durand, Kas., 135 miles; also 45 miles of the Illinois division and 46 miles from Urania to Alexandria, La.

With this installation, 1,507 miles of the Missouri Pacific will be protected with automatic signals. Main lines already are protected with automatic signals from St. Louis to Kansas City and west to Osawatomie, and from St.

Fairmont M2
Master Section Car seats 10 men; top raises for adjustments; 6 H. P. engine; Endless Cord Belt Drive.

Wherever tracks are laid - you will find Fairmont AND Mudge

RAILWAY MOTOR CARS

You will find them in China, in Africa, in Australia, in Tibet . . . . Fairmont sentinels that guard the roads. In these far-away places Fairmont Motor Cars are serving as steadily and faithfully as in the busiest traffic lanes of the world. Along the rushing steel highways of modern travel, Fairmont and Mudge Cars have been the outstanding motor cars for over 18 years. Always ready, always safe, always certain—for instant service at all times. And you will find them wherever there are tracks . . . . *over half of all the motor cars in use are Fairmont Products.*

Performance on the Job Counts

FAIRMONT RAILWAY MOTORS, INC.

General Offices: FAIRMONT, MINN. *General Sales Offices:* CHICAGO, ILL.

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BALDWIN LOCOMOTIVE WORKS, *Foreign Representative*

FAIRMONT AND MUDGE PRODUCTS

Section Motor Cars A2—M2—S2—M14—WS2
Inspection Motor Cars E14—C1—M19—MM9
Weed Mowers and Discers M24—M23
Weed Burners B(M27)—C(M27)
Gang and Power Cars MT2—A4—A5
Push Cars and Trailers T1—T2—T3—T12—T20—T24—T25
Roller Axle Bearings Ringseald-Axlsaver Bower—Hyatt—Timken
Motor Car Engines QB PHB PHA—QHB and W
Wheels and Axles

THE RAILROAD WORLD KNOWS

Louis and Memphis to Texarkana, Ark.

The International Great Northern is completing an installation from Longview Junction to Palestine, Tex., while the Gulf Coast Lines is installing signals from De Quincy to Kinder, La. The present authorization brings total expenditures for signals on Missouri Pacific proper since 1925 to over $4,000,000, protecting approximately 41 per cent of its main lines with this device.

Fruit Rate Hearings for Feb. 25

The United States Supreme Court set February 25 as the date for hearing arguments in the suit brought by a number of railroads in an attempt to overthrow the Interstate Commerce Commission's order of July 20, 1927, reducing freight rates on deciduous fruit shipments from California.

Wants Its Own New Orleans Entry

A plan for constructing a new entrance into New Orleans, involving 82 miles of new railroad, was presented to the Interstate Commerce Commission Nov. 17 by the Missouri Pacific.

The Missouri Pacific, which owns the New Orleans, Texas & Mexico, asked the commission to permit that subsidiary to undertake the 82-mile construction, beginning at Baton Rouge, and running to a point just outside of New Orleans. It was explained that while the Missouri Pacific now has an entrance into New Orleans, its line is 100 miles longer between that city and St. Louis than the lines of its principal competitors.

First Air Show in Chicago

The first International Aircraft Exposition was held in Chicago from December 1 to 9. The Chicago Aero Commission and the Aeronautical Chamber of Commerce were in charge. Seventy-six planes were shown by 53 exhibiting manufacturing companies. In addition there were 25 exhibits by 18 manufacturers of airplane engines and 132 displays of accessories, ranging from model airports to electrically heated aviators' togs. The entire exhibit had an estimated value of $3,000,000.

The exposition was the first all commercial aircraft show, as well as the first time the aircraft industry through its own organization, the Aeronautical Chamber of Commerce, has had a show of its own products.

Taking Off More Trains

In recent months the Nebraska state railway commission has authorized 18 substitutions of motor cars for local runs of steam trains on Nebraska railroads, and in view of the fact that local passenger revenues have been cut in half by bus and private automobile competition, the commission has adopted the policy of permitting the subsitution without a hearing, for a 90-day trial, after which date it becomes permanent unless objections are filed by parties or towns affected. Where these replace the usual engine, baggage and passenger car the expenses are reduced three-fifths, and change an out of pocket cost to a little net revenue in some cases.

Now the Barge Lines Win

In a decision given Nov. 17 the Interstate Commerce Commission ruled that it is empowered under the Denison Act of the last congress to order any raliroad to make joint rates with Mississippi and other river barge lines without giving the railroads concerned opportunity to testify at public hearings.

In addition the commission held that the Inland Waterways controlled by the government and now operating barge lines on the Mississippi and Warrior Rivers, has instituted a service of public necessity and convenience. Hereafter, any water line instituting service will be required to obtain from the commission a ruling that its service is in the interest of public convenience and necessity.

"The commission," said an attorney of prominence, "still labors under the impression that it is a court competent to set out just what is its jurisdiction. Of course it has no such power. The courts will decide this."

Railroads conceded that the commission might order such joint rates after investigation and hearings, while the proponents of the water lines asserted that it could order the joint rates in summary fashion without delay or hearings and investigation.

Would Build More Track

The St. Paul & Kansas City Short Line Railroad and the Chicago, Rock Island & Pacific have asked authority of the Interstate Commerce Commission to extend their lines from Allerton, Ia., to Birmingham, Mo., a distance of 138 miles. Trackage rights would be included for 53 miles of the proposed extension, while 85 miles would be newly constructed from Coburn, Mo., to Birmingham.

They Hate to Quit

Frank A. Wadleigh, past 70, who retired on a pension after more than 40 years service with the Denver & Rio Grande Western, his last position that of general traffic manager, pitched in and helped the Rio Grande in its fight to prevent spoilation of the Royal Gorge by the erection of a hydro-electric plant. Now he has been elected vice president of traffic of the Rocky Mountain Motor Co., a concern that covers Colorado like a blanket, especially having the Estes Park transportation rights, the only motor bus company permitted to do a common carrier business in the park.

Some Baldwin History

The Story of Eddystone, the history of a hundred years, has just been issued by the Baldwin Locomotive Works, Philadelphia. The book contains 75 pages of material so absorbingly interesting and so many illustrations of real value that one regrets the company did not see fit to remember the dimensional limitations of bookcases and overcoat pockets. Here is an industrial romantic drama every railroad man would like to read coming down in the morning or going home at night, a real story about a very great business and the sturdy family and associates who built it, but it won't fit anything made by furniture factories or tailors. Modesty or failure to estimate highly enough the real interest such material has in these days of transportation development is responsible for regrettable brevity. The book might well contain 300 pages of standard size. Sales records show that these are reading days, and that biographies and industrial and scientific stories are in demand.

Oregon Asks Railway

Construction of a railroad across Central Oregon would bring up industry in Southwestern Idaho and Southeastern Oregon to a point impossible with present transportation facilities, said a complainant's brief filed Nov. 20 with the Interstate Commerce Commission on the complaint of Idaho and Oregon against the Central Pacific Railroad and other railroads. The brief was filed by the public utilities commissioners of the two states.

Two More Rail and Air Lines

The Illinois Central has contracted with the Robertson Aircraft Corp. for operation of an air and rail service between Chicago and St. Louis. The Southern Railway is negotiating with air route operators for a Washington-New York line connecting with the railroad's northern terminal at Washington.

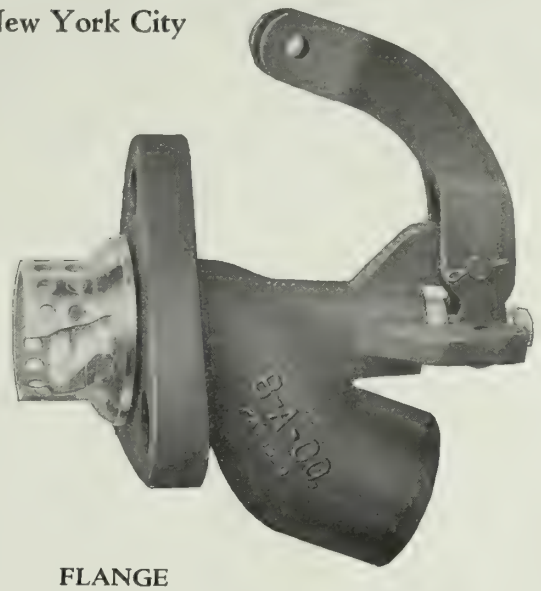
Reports from Class 1 Railroads

Class I railroads on November 15 had 162,314 surplus freight cars in good repair and immediately available for service, the car service division of the American Railway Association re-

The Bird-Archer Company

1 E. 42nd St., New York City

Realizing that in order to make the Bird-Archer Boiler Chemical treatment a success, locomotive boilers must be blown regularly, this Company has placed on the market a Blow-off Cock, with various types and sizes to meet the requirements of the railroads. Our latest booklet will be mailed to you from our nearest office upon request.



FLANGE
Blow-Off Cock with Joint-Ring Strainer
(Northwestern Type)

PHILADELPHIA CHICAGO ST. LOUIS MONTREAL WINNIPEG
BUENOS AIRES MANILA AUSTRALIA

ported. This was an increase of 33,163 cars compared with November 8 at which time there were 129,151 cars. Surplus coal cars on November 15 totaled 44,736, an increase of 13,168 within about a week while surplus box cars totaled 80,817, an increase of 16,-285 for the same period. Reports also showed 19,996 surplus stock cars, an increase of 1,144 cars over the number reported on November 8 while surplus refrigerator cars totaled 7,662, an increase of 1,085 for the same period.

Loading of revenue freight for the week ended November 17 totaled 1,059,-701 cars. This was an increase of 6,406 cars over the preceding week this year, increases being reported in the total loading of all commodities except ore and merchandise less than carload lot freight, both of which items reported decreases. The total for the week of November 17 was an increase of 91,-649 cars above the same week in 1927 but a decrease of 12,006 cars under the corresponding week two years ago. Miscellaneous freight loading for the week totaled 339,751 cars, an increase of 41,465 cars above the corresponding week last year and 18,026 cars above the same week in 1926.

All districts reported increases in the total loading of all commodities compared with the same week last year but the Pochahontas and Northwestern were the only districts to report an increase compared with the same period two years ago.

Great Western Earnings Up

Col. N. L. Howard, president of the Chicago Great Western, states that earnings to the end of October, were ahead of the same period last year, and indications are that for the remaining two months business will hold up to its present volume and that the year 1928 will be better than last.

The Great Western has shown continuing improvement in efficiency of operation which, with economies effected, has enabled it to report net income during the ten months of the present year well in excess of 1927.

More Pennsylvania Electric Service

Complete electrified passenger train service was established on the Octoraro branch of the Pennsylvania Railroad between Philadelphia, Wawa and West Chester Sunday, December 2, when a new schedule, covering the change from steam to electric power, went into effect. The new electrification extends 27½ miles and affects the operation of 40 week day and 19 Sunday trains. Electrification of the Octoraro branch marks the completion of another important step in the development of the Pennsylvania Railroad's general program of passenger terminal improvements in Philadelphia. This plan, which centers about the great new passenger station to be built on the west bank of the Schuylkill River, provides for local and commuting trains through the new station, over a new river bridge and into a subway now under construction, to an underground suburban station to be located at 16th street and the Parkway. All trains using the subway will be electrically operated.

Railways Win Over the Bus Lines

The state railroad commission has denied the Auto Transit Company, Pickwick Stages System and the Motor Carriers' Association of California rehearing of recent order in which the commission gave permission to the Southern Pacific to abandon steam service on several of its short lines in the Santa Cruz-Monterey territory and put motor coaches in operation instead.

Motorization of steam lines, by the decision, is held to be nothing more nor less than a substitution of existing service. The effect is considered a victory for railroads operating in the state and

is expected to be followed by several additional applications.

The Proper Spirit

Much low grade ore is being mined at Cripple Creek, Colo., that can not be handled at a profit, the result being that it has been dumped. Now the Midland Terminal, operating between Cripple Creek and Colorado Springs, the mill being at the Springs, has named a rate of 50 cents a ton on all ore that does not assay above $4 a ton. This freight rate and the mill treatment puts the cost for handling a ton to only $2.95. Much of the low grade ore now will be moved, the railroad and the mine owners being benefited.

Dining Car Men Elect

Howard W. McAbee, superintendent of dining car service on the Denver & Rio Grande Western was elected president of the American Association of Superintendents of Dining Cars at the annual convention of the organization in Chicago. Montreal was chosen as the meeting place for 1929. L. A. Stone of the Chicago & Eastern Illinois was elected vice president; F. R. Borger of the Chicago, Indiana & Louisville, secretary, and T. D. Wickham of the Rock Island; F. W. Gentsch of the Union Pacific and J. A. Blair of the Great Northern members of the executive committee.

Moffatt Tunnel Decision Is Appealed

Stating that the lower court erred in holding that the law creating the Moffat tunnel district and tunnel commission made mandatory the construction of the Moffat tunnel, regardless of financial difficulties, the Denver Land Company has appealed from the decision of Judge Robert G. Smith of the district court and carried its case to the Colorado supreme court. The land company is seeking to have declared invalid the $8,750,000 bonds which were issued in excess of the $6,720,000 approved bonds.

Union Ticket Office for Air Lines

Bookings for nine air passenger lines are handled every day by the air passenger bureau and consolidated ticket office in the Palmer house, Chicago. The bureau was established four months ago by the operators of air mail in Chicago, through their organization the Chicago Air Traffic association.

The lines operating the ticket office are at the present time flying more than 12,000 miles daily which is slightly less than a third of all the scheduled operations in the United States. Passengers may book through this office for passage over any passenger air line in the United States.

States Have Power Over Grade Crossings

State authority to compel railroads to eliminate dangerous grade crossings was sustained by the United States Supreme Court Nov. 19 in two cases brought by the Lehigh Valley Railroad contesting orders of the New Jersey board of public utility commissioners requiring the elimination of a grade crossing at Royce Valley near Hillsborough.

The court asserted, however, that the cost of eliminating the grade crossings must be reasonable.

S. P. Makes Fund for Safety

The Southern Pacific Co. announced Dec. 5 it had appropriated $2,500,000 for construction work to complete its block-signal system as part of its safety program.

The announcement of J. H. Dyer, general manager, said 80 per cent of the system had been equipped with automatic safety devices, costing approximately $17,000,000.

Complete installation of automatic signals will be made by 1930.

S. P. Net Goes Up

October net railway operating income of the Southern Pacific increased $863,432 or more than 13 per cent over the earnings reported in October last year, reaching a total of $7,760,830. Net railway operating income for the ten months ended October 31, last, aggregated $46,916,875, as compared with $43,469,478 in the corresponding period of 1927, a gain of $3,447,396, or about 8 per cent.

Gross revenues for the month totaled $30,588,968 and net revenues after operating expense, $11,039,135, an increase of $888,405. Gross revenues for the ten months aggregated $251,717,073, and net revenue after operating expense, $70,971,297, an increase of $3,399,586.

Fast Motors for Rock Island Lines

De luxe gas electric passenger roller bearing motor cars, with enclosed vestibules of the Pullman type, some of which will be capable of attaining a speed of 60 miles an hour, will be placed in service soon on the Rock Island Lines in Illinois, Iowa, Kansas, Arkansas, and elsewhere. Fifteen of these new motor cars will be delivered to the railroad from the car manufacturers by January 1. The present consignment of motor passenger cars is a part of a $750,000 program of the Rock Island to motorize a number of its branch lines, substituting the gas electric cars for steam locomotives.

Railway Construction

Tracks and Yards

CALIFORNIA.—The Southern Pacific has received approval from the secretary of war for a bridge over Carquinez Straits, near San Francisco.

—The I. C. C. has given permission to the Southern Pacific to control, by lease, a branch of the Visalia Electric from Chowchilla 10 miles southwesterly.

COLORADO.—The San Luis Valley Southern plans to construct a 22-mile extension from Jaroso to Questa, N. M., to cost about $300,000.

ILLINOIS.—The Chicago & North Western is planning the elevation of the Chicago-Omaha main line and the addition of two main tracks in the Chicago suburban district between the present westward end of track elevation at River Forest, and the east end of Proviso yard, about 2.25 miles. Included in the work will be the widening of the Des Plaines River bridge for four tracks. There are now two main tracks between River Forest and Elmhurst used by suburban and through passenger trains. The increased number of tracks is designed to relieve congestion.

INDIANA.—The Chicago & Western Indiana has asked permission to acquire, and the Belt Railway has asked permission to lease, and operate the terminal properties of the Burlington South Chicago Terminal.

LOUISIANA.—The New Orleans, Texas & Mexico has asked authority to construct an 82-mile line from the east bank of the Mississippi River near Baton Rouge to a point near New Orleans, to give the Missouri Pacific a new entrance to New Orleans. The Missouri Pacific now uses tracks of the Yazoo & Mississippi Valley from Baton

Rouge to New Orleans with the agreement that it can not participate in local business. The application states that the present line from St. Louis to New Orleans is nearly 100 miles longer than than of its strongest competitor and that the proposed line would shorten this distance to about 43 miles.

MICHIGAN.—The Chicago & North Western has applied to the I. C. C. for authority to build a five-mile extension to its Marenisco line, in Gogebic county.

MISSOURI.—W. P. McGeorge & Co., Pine Bluff, Ark., and Cape Girardeau, Mo., has a contract from the Missouri Pacific for a six-mile line between Illmo and a point south of Cape Girardeau.

—The Rock Island and the Kansas City Short Line have asked permission to construct an 84-mile extension from Coburn to Birmingham, affording access to the road of the Kansas City Terminal Co. The Short Line also asked permission to operate over the Rock Island's line from Allerton, Ia., to Coburn.

NEBRASKA.—The Yankton, Norfolk & Southern has permission to construct a 65-mile line from Yankton, S. D., to Norfolk, Neb. Cost of construction is estimated at $2,200,000 and equipment $125,000.

NEW MEXICO.—See Texas.

PENNSYLVANIA.—The I. C. C. denied petitions of the Pennsylvania and the B. & O. to reconsider the proceedings in which permission was given the Pittsburgh & West Virginia to build a 38-mile extension from Cochran's Mill to Connellsville. Permission was granted on a vote of five to four.

SOUTH DAKOTA.—See Nebraska.

TEXAS.—The Fort Worth & Denver South Plains has permission to construct a one and one-third mile extension at Lockney.

—Allhands & Davis have a contract for grading of the Texas-New Mexico, a subsidiary of the Texas & Pacific, from Monahans through Ward and Winkler counties to the New Mexico state line, about 40 miles. Company forces will lay the track.

—C. K. Horton, Houston, has a contract from the Port Terminal Assn. to construct a four-mile extension at Houston to cost $90,000.

—The St. Louis, Brownville & Mexico has asked permission to construct 10 miles of line near Weslaco.

—The Texas & Pacific has permission to acquire control of the Texas-New Mexico by purchase for cash of $500,000 of stock.

UTAH.—The St. John & Ophir has permission from the I. C. C. to abandon its 8.5-mile line in Tooele county.

WEST VIRGINIA.—The Nicholas Fayette & Greenbrier has permission from the I. C. C. to construct a 29-mile line from a connection with the New York Central at Swiss to a connection with the Loop & Lookout Railroad at Nallen.

Buildings and Structures

ALABAMA.—Mobile. The Roberts & Schaefer Co., has a contract from the Louisville & Nashville for a 500-ton capacity, reinforced concrete, shallow pit, automatic electric locomotive coaling station, a "RandS" gravity sand plant and two "N. & W." type electric cinder handling plants.

GEORGIA.—Atlanta. The Nashville, Chattanooga & St. Louis has prepared plans for a two-story brick passenger station here, to cost $350,000.

MAINE.—Caribou. The Bangor & Aroostook has awarded a contract to N. W. Downing for a $30,000 passenger station here.

MISSOURI.—St. Louis. The Frazier-Davis Construction Co., St. Louis, has a contract from the St. Louis public service board for the timber deck and railroad approach to the $203,000 municipal bridge.

Work for Millions

NEIGHBOR of yours—that's the railroad man. Steadily employed at good wages he is the valued patron of the local merchant, pays taxes, owns his home and contributes materially to the prosperity of the neighborhood in which he dwells. Last year 1,734,470 American railway employes earned over $2,909,000,000, most of which found its way into local channels of commerce and trade, sustaining the market for *your* products.

No matter what you grow or create to sell at a profit, a national payroll of this size is a factor in your business. But railroads, through their vast purchases of materials and supplies, have an even wider effect upon *your* markets.

Last year the Class I railroads furnished profitable employment to many millions of workers through their $1,395,928,000 purchase of 25 per cent of the country's bituminous coal production, 20 to 25 per cent of all fuel oil, 17 per cent of the total timber cut, 19 per cent of the total iron and steel output, and considerable percentages of other products.

When railroads prosper and are able to make the huge expenditures required to keep pace with the growing transportation needs of the country, millions of workers thus kept employed are able to buy larger quantities of Pacific Coast products, thus adding to *your* prosperity.

SOUTHERN PACIFIC

NEBRASKA. — Hastings. The St. Joseph & Grand Island has let a contract to Earl Ellis, Hastings, for a $50,000 two-story brick and concrete freight station here.

NEW JERSEY. — Jersey City. The Lackawanna has let the contract for the foundation and superstructure and providing the mechanical equipment of the new terminal warehouse here to the Turner Construction Co., New York. The storing capacity of this warehouse will be about 147,000 tons.

NEW JERSEY.—Marion. Arthur McMullen Co., New York, has a contract from the Pennsylvania for masonry for piers on the New Hackensack River bridge here.

PENNSYLVANIA.—Pittsburgh. The Pennsylvania has let a contract to W. F. Trumble & Sons, Pittsburgh, for a $500,000 fruit auction building here.

TEXAS.—Dowling. Plans have been prepared by the Texas lines of the Kansas City Southern for a $825,000 terminal here, which is between Beaumont and Port Arthur, to include about 20 miles of track. Facilities are to include an eight-stall enginehouse, a turntable, a machine shop for locomotive repairs and a power plant to include generator, air compressor and power distribution lines. Plans also include a storehouse with office, water storage and distribution system, a locomotive fuel oil and sanding plant, a storm and sanitary sewage system and a station and office building.

TEXAS. — Smithville. The Missouri-Kansas-Texas has let a contract to T. H. Johnson, Sedalia, Mo., for an eight stall enginehouse and machine shop here to cost $300,000.

Locomotive Orders

Locomotives placed in service by Class I railroads during the first ten months in 1928 totaled 1,190, a decrease of 481 compared with the same period last year. Locomotives on order November 1, this year, totaled 121 compared with 80 on the same date in 1927.

Locomotives in need of repair on November 15 totaled 8,789 or 14.9 per cent of the number on line, 8.1 per cent in need of classified repairs and 6.8 per cent in need of running repairs. Serviceable locomotives in storage November 15 totaled 5,234 compared with 4,958 on November 1.

The Missouri Pacific will ask for bids on 25 large switchers; Louisville & Nashville is inquiring for 24 Mikados; Frisco, 12 2-8-4 type locomotives; Western Pacific, 10 2-10-4 type locomotives; Chicago & North Western, 10 locomotives; Burlington six 2-10-4 type locomotives; Great Northern, six 4-8-4 type locomotives; Kentucky & Indiana Terminal, nine switchers. It is reported that the Wabash will buy 55 locomotives. The Lehigh Valley and Northern Pacific are said to be figuring their locomotive requirements.

The Wheeling & Lake Erie will build ten switchers in its own shops. The Steel Company of Canada has purchased a 300 h.p. power plant from the Electro-Motive Co. which will be used to convert a locomotive to gas-electric drive.

Passenger Car Orders

Orders placed since the November issue of Transportation include the following: Canadian National, 30 sleeping cars and 10 buffet parlor cars with Canadian Car & Foundry Co. and 25 first class coaches with National Steel Car Corpn.; Canadian Pacific, 11 buffet parlor car frames with Canadian Car & Foundry Co., 15 dining car frames, two cafe parlor car frames, two single bed compartment car frames and 50 express refrigerator cars with National Steel Car Corpn.; Chesapeake & Ohio, six combination passenger, baggage and mail gas-electric rail motor cars and one model-55 combination passenger and baggage gasoline rail motor car from J. G. Brill Co., and two dining cars from Pullman Car & Mfg. Corpn.; Omaha, four gas-electric rail motor cars from Pullman Car & Mfg. Corpn., equipped with eight Electro-Motive power plants; Colorado & Southern, one gas-electric rail motor car from Pullman Car & Mfg. Corpn. with Electric-Motive power plant; Chicago & North Western, 14 gas-electric power plants from Electro-Motive Co. for installation in 10 car bodies to be built by Pullman Car & Mfg. Corpn.; Dominion Power & Transmission Co. Ltd., 12 double truck street cars from National Steel Car Co.; Northwestern Pacific, five motor coaches and five trailers from St. Louis Car Co.; Montreal Tramways Co., 106 tram cars from Canadian Car & Foundry Co.; New York Central, rebuilding of 30 passenger coaches with American Car & Foundry Co. The Chicago, South Shore & South Bend has exercised the option on five additional cars and five additional trailers with Standard Steel Car Co.

The Santa Fe is inquiring for 10 chair cars, 10 mail and baggage cars, 10 Jim Crow cars, 16 baggage cars and 10 combination chair and smoker cars; Rock Island, two steel parlor cars; Great Northern, three dining cars; Green Bay & Western, four or five combination baggage and mail cars; Lehigh Valley, two gas-electric rail motor cars with baggage compartment, Louisville & Nashville, 12 coaches, six baggage cars and four dining cars; Rapid City, Black Hills & Western, two baggage and mail cars; Southern Pacific, Louisiana & Texas Lines, one combination baggage and mail gas-electric rail motor car. The Missouri Pacific will ask for bids on 13 baggage cars, 13 mail and baggage cars, 11 divided coaches, two observation type combination diner-parlor cars and one combination cafe club coach.

Freight Car Orders

According to reports filed with the A.R.A. freight cars placed in service by Class I roads in the first ten months this year totaled 50,622, a decrease of 15,742 compared with the same period last year. Freight cars installed in October totaled 4,048 compared with 7,659 in October last year. The railroads had 6,081 freight cars on order on November 1, compared with 11,136 on the same date last year.

The Santa Fe is inquiring for 2000 box cars, 450 50-ton gondolas, 250 20-ton gondolas, 150 steel hopper gondolas, 150 sulphur gondolas, 500 refrigerator cars, 200 50-ton flat cars, 500 40-ton stock cars, 250 double deck stock cars and 125 all steel cabooses; Louisville & Nashville, 1200 50-ton gondolas, 250 70-ton gondolas, 750 automobile cars and 300 box cars; Boston & Maine, 500 hopper cars; Rock Island, 300 all steel tank cars, 250 ballast cars and 50 steel cabooses, Great Northern, 200 general service gondolas; Imperial Refining Co., Tulsa, 200 tank cars; Lehigh Valley, 300 automobile cars, 500 coal cars and 200 gondolas; Western Pacific, 50 flat cars, 250 automobile cars and 50 tank cars; Pacific Fruit Express, 600 underframes, Fruit Growers Express, from 50 to 200 underframes, Chicago & North Western, 25 hopper cars and 200 Enterprise type ballast cars; Missouri Pacific, 100 underframes. The Missouri Pacific will call for bids on 1000 box cars, 1000 automobile cars, 500 coal cars, 500 stock cars, 60 cabooses and 20-yd. dump cars. The Chicago & North Western is contemplating buying 2000 automobile cars; Seaboard Air Line, 200 steel hopper cars and the Chicago & Eastern Illinois may buy 200 single sheathed automobile cars in addition to the 100 previously ordered.

The Wabash ordered 1500 automobile cars from American Car & Foundry Co. and 500 automobile cars from Pullman Car & Mfg. Corpn.; American Regrigerator Transit Co., 1000 refrigerator cars from Pressed Steel Car Co.; Chicago & North Western, 400 gondolas from Standard Steel Car Co.; 300 flat cars from Pressed Steel Car Co.

TRUE ECONOMY

Can be Secured in Steam Locomotives

by the use of

ECONOMY BAFFLE WALLS

THEY INSURE MAXIMUM LIFE OF BRICK WITH A MINIMUM WEIGHT ON THE ARCH TUBES

THE ECONOMY METHOD of SUPPORTING SIDE BRICK on TRUNNIONS ELECTRICALLY WELDED to the SIDE SHEET ELIMINATES the liability of the side brick dropping into the fire bed and the necessity of straightening or replacing bent arch tubes.

THE ECONOMY METHOD provides radiant heat near the side sheets, causing more complete combustion in this "COLD" area. It also PREVENTS the accumulation of coke and slag in the "pockets" resulting when inclined side brick are used, thus increasing the active fire-box heating surface.

ECONOMY ARCH COMPANY

1843 RAILWAY EXCHANGE BUILDING **ST. LOUIS, MISSOURI**

Distributors of Locomotive Arch Brick Manufactured by
EVANS & HOWARD, LACLEDE-CHRISTY, A. P. GREEN and NILES FIREBRICK COMPANIES

and 100 steel underframes for wooden caboose cars from American Car & Foundry Co.; Great Northern, 300 ore cars from Standard Steel Car Co.; Nevada Consolidated Copper Co., 70 ore cars from Koppel Industrial Car & Equipment Co.; Warner-Quinlan Co., 10 insulated tank cars from General American Tank Car Corpn.; Montour Railroad, 10 caboose cars from Standard Steel Car Co.; Hercules Powder Co., Wilmington, Del., 10 tank cars from American Car & Foundry Co.; Buffalo, Rochester & Pittsburgh, repairs to 500 hopper cars divided between Pressed Steel Car Co. and American Car & Foundry Co.; Armour Car Lines, 500 underframes from Bettendorf Co.; St. Louis Southwestern, five steel underframes and steel parts for rebuilding five Rodger ballast cars from American Car & Foundry Co.; Mukden-Hailung, Mukden, Manchuria, steel parts for 60 steel underframe high side gondolas and 40 steel underframe box cars from Pressed Steel Car Co. The Canadian Pacific ordered 1500 box cars from the Canadian Car & Foundry Co. and 1000 box cars and 200 automobile cars from the National Steel Car Corpn. The Canadian National ordered 1600 box cars and 30 tank cars from the Canadian Car & Foundry Co., 750 box cars and 300 flat cars from National Steel Car Corpn., 500 refrigerator cars and 500 ballast cars from the Eastern Car Co., 500 automobile cars for the Central Vermont and 500 automobile cars for the Grand Trunk Western from Pressed Steel Car Co.

Bus and Truck Orders

Recent orders and deliveries include the following: Boston Elevated Railway, five Twin Coach urban coaches; Burlington Rapid Transit Co., Burlington, Vt., one Twin Coach urban coach; Central Transportation Co., Trenton, N. J., two Twin Coach suburban express coaches; Community Traction Co., Toledo, 32 33-passenger Yellow coaches; Detroit Street Railways, 90 16-passenger Dodge-Graham de luxe coaches, 15 40-passenger single deck metropolitan A.C.F. buses; 40 16-passenger de luxe General Motor coaches powered by Cadillac motors; 15 Twin Coach urban coaches; Eastern Michigan Motorbuses, Detroit, 10 Twin Coach urban coaches; Great Lakes Stages, Cleveland, one Twin Coach parlor coach; Illinois Power Co., Springfield, two 21-passenger Studebaker street car type buses and two 22-passenger Studebaker Seminole parlor observation buses; LaCrosse & Southwestern Transportation Co., one 12-passenger Reo coach mounted with a Fitzjohn parlor car type body; New England Transportation Co., one 29-passenger A.C.F. parlor observation coach; Northland Transportation Co., two model-54 White motor coaches; Pacific Electric Co., one 16-passenger Fageol special parlor car bus; Reading Transportation Co., three 21-passenger Studebaker city type coaches; Southern Pacific Motor Transport Co., one 27-passenger A.C.F. parlor type coach, two 21-passenger Reo motor coaches with Fitzjohn bodies, three 22-passenger Studebaker observation type coaches, one model-54 White motor coach, and five 22-passenger Fageol semi-parlor type coaches; Southwestern Transportation Co., eight model-54 White parlor type coaches, bodies to be built by the Bender Body Co.; Spokane, Portland & Seattle Transportation Co., three 30-passenger Fageol semi-parlor type coaches; Union Pacific, one 28-passenger A.C.F. parlor coach, United Electric Railways Co., Providence, eight Twin Coach suburban express coaches; Virginia Electric & Power Co., five Twin Coaches; Washington Railway & Electric Co., four new type V 29-passenger Yellow coaches; Wichita Falls Traction Co., two 21-passenger Mack city type buses; Yellow Taxi Corpn., New York, 300 new model Yellow cabs.

Changes in Personnel

Executive and Operating

Frederic E. Williamson, executive vice president of the Burlington and Colorado & Southern, has been advanced to the position of president and chairman of the executive committees of both companies. **Conrad E. Spens,** for some years vice president in charge of traffic, was elected executive vice president of both companies. These changes are due to the resignation of **Hale Holden,** president of the Burlington who will become chairman of the executive committee of the Southern Pacific, January 1.

Fred Lavis, consulting engineer, New York, has been elected a member of the board of directors and president of the International Railways of Central America. He succeeds **Minor C. Keith,** who has been elected chairman of the board.

W. C. Price has been appointed transportation inspector of the Union Pacific with headquarters at Salt Lake City.

H. B. Lautz, superintendent of the middle division of the Santa Fe, with headquarters at Newton, Kansas, has been appointed assistant general manager, northern district, western lines, with headquarters at La Junta, to succeed **C. H. Bristol,** Mr. Bristol, having requested relief from the duties of assistant to general manager of the western lines with headquarters at Amarillo. **G. G. Derby,** superintendent of the southern Kansas division, with headquarters at Chanute, has been transferred to the middle division to succeed Mr. Lautz. **A. A. Gist,** trainmaster of the southern Kansas division has been named superintendent to succeed Mr. Derby.

J. A. Gillies, assistant superintendent of the western division of the Santa Fe, with headquarters at Dodge City, has been appointed superintendent of the Slaton division of the Panhandle & Santa Fe, to succeed **J. C. Barton,** transferred to the Panhandle division, with headquarters at Wellington, Kan. Mr. Barton succeeds **J. B. Brisco,** transferred to the plains division, with headquarters at Amarillo. **J. W. Walter,** trainmaster on the Pecos division, with headquarters at Slaton, Tex., has been appointed assistant superintendent of the western division vice Mr. Gillies.

M. T. Skewes, chief train dispatcher, River, Iowa, and Minnesota divisions of the Milwaukee, has been appointed assistant superintendent of those divisions with headquarters at Minneapolis.

Earle B. Sloan, assistant to the president and chief engineer of the Southern Pacific of Mexico, with headquarters at Jalisco, has been elected president of the local board of directors and fiscal representative with headquarters at Mexico City.

Albert W. Anderson, vice president and general manager of the Charleston & Western Carolina has been elected president and general manager. He will succeed **F. Barron Grier,** resigned.

Dr. O. B. Zeinert, assistant chief surgeon of the Missouri Pacific, has been appointed chief surgeon with headquarters at the Missouri Pacific Hospital, St. Louis, to succeed **Dr. P. F. Vasterling,** who has been named consulting surgeon.

W. H. Dresser, superintendent of the San Joaquin & Eastern, with headquarters at Auberry, Cal., has retired. He is to be succeeded by **H. L. Wheeler,** supervisory engineer.

The Union Pacific announces that **A. W. Lee** has been appointed assistant to the general manager of the Oregon Short Line, with headquarters at Salt Lake City, to succeed **C. M. Ball,** retired.

Financial and Legal

H. S. Prentiss Nichols, assistant general counsel of the Pennsylvania, with headquarters at Philadelphia, has retired after 21 years service. He is one of 75 employes retired December 1 under the company's pension plan.

E. W. Shell has been appointed treasurer and **A. A. Pinkney** comptroller of the Algoma Eastern, with headquarters at Sault Ste. Marie, Ont.

M. L. Countryman, Jr. and **F. D. McCarthy,** general attorneys of the Northern Pacific, have been appointed assistant general counselors, with headquarters at St. Paul. **F. J. Gehan** has been appointed assistant to the general counsel.

T. H. Seay, general auditor of the Southern Railway with headquarters at Washington, also has been appointed general auditor of the Mobile & Ohio.

K. L. Richmond, assistant general solicitor of the Chicago & Eastern Illinois has been appointed general solicitor with headquarters at Chicago, to succeed **H. T. Dick,** deceased. Mr. Richmond is to be succeeded by **J. F. Connors.**

Frederic D. McCarthy, general attorney of the Northern Pacific, with headquarters at St. Paul, has been appointed assistant general counsel. **Conrad Olson,** former judge of the municipal court in St. Paul, has been named general attorney.

Purchases and Stores

C. S. Wetherholt, storekeeper on the Chesapeake & Ohio at Cane Fork, W. Va., has been transferred to Thurmond. He is succeeded at Cane Fork by **C. A. Rice. R. M. Taylor,** storekeeper at Boston, Ind., has been transferred to Shelby, Ky., and will be succeeded at Boston by **L. C. Clinkinbeard.**

The Burlington announces that **E. J. Clark,** general foreman in the stores department at Havelock, Neb., has been appointed storekeeper with headquarters at Creston, Ia., to succeed **F. M. Phebus.**

Traffic

The Erie announces these appointments: **H. W. Forward,** assistant freight traffic manager, with headquarters at Chicago, has been appointed freight traffic manager to succeed **F. D. Austin. F. G. Lantz** and **W. V. Kennedy,** general freight agents, have been appointed assistant freight traffic managers with headquarters as before. **J. G. Hill,** assistant general freight agent, has been appointed general freight agent at Chicago.

Fred C. Werner, city freight and passenger agent for the Frisco at Kansas City, has been elected president of the National Assn. of City Passenger Agents, at the sixth annual convention in San Francisco.

G. C. Marquardt has been appointed assistant foreign freight agent of the Chesapeake & Ohio, with headquarters at Chicago to succeed **R. B. Falkiner,** resigned.

Henry E. Bulla, general agent in the passenger department of the Chicago Great Western at Des Moines, has been appointed assistant general passenger agent, Kansas City, to succeed **George Bristow,** deceased. **Eugene M. Peck,** general agent, passenger department, Omaha, will succeed Mr. Bulla as general agent, passenger department Des Moines. **S. M. Lundberg,** city passenger agent, Kansas City, has been appointed general agent, passenger department, Omaha, to succeed Mr. Peck.

J. C. Peterson, general agent in the freight department of the Soo Lines at Minneapolis, has been appointed assistant general freight agent there.

The New York Central announces that **H. Parry,** general passenger agent with headquarters at New York, has been appointed assistant passenger traffic manager Buffalo for lines east. **A. E. Brainard,** assistant general passenger agent, Buffalo and lines east, with headquarters as before. **Neil Mooney,** assistant general passenger agent at New York will succeed Mr. Brainard. **Irving M. Taylor,** assistant to general passenger agent has been appointed general passenger agent in charge of fares and divisions, with headquarters at New York, and with jurisdiction over lines east and west of Buffalo. **A. L. Miller,** division passenger agent at Albany has been named assistant general passenger agent, Buffalo and lines east, with headquarters at New York. **I. G. Rasp,** division freight and passenger agent at Corning, N. Y. has been appointed division passenger agent, with headquarters at Albany. **L. S. Landman,** passenger traffic manager, with headquarters at Chicago will have charge of territory extended to include Buffalo and lines west. **J. S. Hall,** chief assistant general passenger agent, has been appointed general passenger agent of the lines west of Buffalo, with headquarters as before at Cleveland.

Mechanical

O. S. Jackson

O. S. Jackson, superintendent of motive power and machinery, Union Pacific, has been appointed general superintendent of motive power and machinery with jurisdiction over the entire system, a newly created position. **J. W. Burnett,** whose position of assistant superintendent of motive power and machinery is abolished, will succeed Mr. Jackson as superintendent of motive power and machinery. Mr. Jackson was born in 1865 on a farm near Huntington, Ind. When he was 14 years old he became a waterboy and section hand on what is now a part of the Big Four, but soon afterward entered the mechanical department of the Erie. He joined the Union Pacific in 1921 as assistant superintendent of motive power and machinery and was named superintendent in 1923. Mr. Burnett has been with the U. P. more than 16 years, having started as a machinists' apprentice at Cheyenne.

F. A. Beyer, superintendent of the west shops of the Frisco, has retired from active railway service.

Warren D. Gochenour has been appointed master mechanic of the Rocky Mountain division of the Northern Pacific, with headquarters at Missoula, Mont., to succeed **Sutton H. Draper,** who is retiring after 45 years service with the company.

The Missouri Pacific announces that **J. B. Crahan,** master mechanic at Wichita, has been transferred to the Memphis and Little Rock divisions with

JORDAN SPREADER
"Does the Work of an Army of Men"
SNOW PLOW ★ ICE CUTTER ★ DITCHER
UNIVERSALLY STANDARD
O.F. JORDAN COMPANY
WALTER J. RILEY, PRESIDENT
EAST CHICAGO, INDIANA

'RALSTON BUILT'
Steel and Composite Cars

Completely rebuilding large numbers of steel cars in record time is an achievement that Ralston Steel Car Company has repeated time and time again.

This is possible only through our excellent facilities and well-balanced program, which, together with skilled workmen and competent engineers, keep the cars moving through the plant on regular schedule.

THE RALSTON PLANT is equipped to build New Cars, to Rebuild Old Cars, to Repair and to supply repair parts. All materials and work of the highest QUALITY and performed under expert Engineering Supervision.

RALSTON STEEL CAR CO.
COLUMBUS, OHIO

headquarters at McGehee, to succeed **W. A. Curley,** deceased. **George Schepp** succeeds him at Wichita.

J. A. Anderson, shop superintendent of the Milwaukee at Milwaukee, has been appointed assistant superintendent of motive power in charge of shops and machinery for the system, with headquarters as before. **R. C. Hempstead,** division master mechanic at Dubuque, succeeds Mr. Anderson. The jurisdiction of Master Mechanic **P. L. Mullen,** with headquarters at Savanna, Ill., has been extended to include the Dubuque division.

T. W. Carr has been appointed mechanical engineer on the Pittsburgh & Lake Erie and the Lake Erie & Eastern, with headquarters at Pittsburgh, to succeed **C. H. McConnell,** deceased.

Civil

William F. Cummings, engineer maintenance of way on the Boston & Maine, with headquarters at Boston, has been appointed assistant chief engineer with the same headquarters. **Harold F. Fifield** will succeed Mr. Cummings at Boston. **Charles J. Griffin,** principal assistant engineer with headquarters at Boston has been appointed construction engineer in charge of Boston terminal improvements. **Joseph A. Parant,** engineer of standards, has been appointed principal assistant engineer, with headquarters as before.

H. T. Wike has been appointed bridge and building supervisor, Charleston division, of the Southern with headquarters at Rock Hill, S. C., to succeed **J. M. Cothran,** deceased.

J. L. Campbell

J. L. Campbell has been appointed chief engineer of the Northwestern Pacific with headquarters at San Francisco. Mr. Campbell's first railway service was in 1894 as resident engineer on the construction of the Rio Grande Northern. He was appointed chief engineer of the El Paso & Northeastern in 1897, and later, of the St. Louis, Kansas City & Colorado. When this property was completed he was named engineer maintenance of way of the El Paso & Southwestern and later chief engineer, holding this position when the road was consolidated with the Southern Pacific. He was with that company until his recent appointment. Mr. Campbell has been a member of the American Society of Civil Engineers for the past 27 years and is a past president of the American Railway Engineering Assn.

A. A. Wood, assistant signal supervisor of the Boston & Maine, with headquarters at Concord, has been appointed to succeed **G. C. Ketchum** as signal engineer with the same headquarters. **Carl T. Smith** will succeed Mr. Wood as assistant signal supervisor.

F. M. Graham, engineer of maintenance of way of the Lake division, of the Pennsylvania with headquarters at Cleveland, has been promoted to assistant engineer of standards, with headquarters at Altoona. Mr. Graham will be succeeded at Cleveland by **F. M. Hawthorne,** division engineer of the Philadelphia terminal division, with headquarters at West Philadelphia. **R. S. Stewart,** engineer of the New York division with headquarters at Jersey City, has been appointed engineer maintenance of way, with headquarters at Philadelphia.

Supply Trade Notes

James T. Milner, vice president of the Standard Car Truck Co., Chicago, died November 19 at Coral Gables, aged 57. Mr. Milner entered the employ of the Pullman Co. when he was 19 years old, and was later made assistant purchasing agent. In 1893 he resigned to become western sales agent of the Pressed Steel Car Co., which position he held until 1901. In 1908 he entered the employ of the Standard Car Truck Co., as vice president.

William C. McKeown, superintendent of the Wyoming division of the Union Pacific from 1909 to 1912, with headquarters at Cheyenne, died at Denver, November 13, aged 68.

John A. Manley, manager of sales development of **Fairbanks, Morse & Co.,** has been elected vice president in charge of sales.

T. W. Towler has been appointed advertising manager and a member of the new business staff of **United Engineers & Constructors, Inc.,** with headquarters at New York. Mr. Towler was formerly with the Ruthrauff & Ryan Advertising Agency of New York and also the Cosmopolitan Magazine. Prior to these connections he was with Westinghouse, Church, Kerr & Co., which was consolidated with Dwight P. Robinson & Co., Inc., and in turn recently merged with the United Engineers & Constructors.

The **Alemite Manufacturing Corpn.,** Chicago, announces that **N. J. Kamen,** representative of the Detroit Lubricator Co., New York, has been appointed sales and service engineer in the railroad department.

C. B. Moore, vice president of the **Oxweld Railroad Service Co.,** with headquarters at Chicago, has been elected chairman of the board. **J. H. Rodger,** formerly vice president of the Safety Car Heating & Lighting Co., will succeed Mr. Moore as vice president.

The **Baker-Raulang Co.,** Cleveland, announces that **A. J. Gates,** representative, has been appointed chief sales executive.

Charles H. Quinn, has been appointed San Francisco representative of the **Ewald Iron Co.,** in connection with the sale of the staybolt and engine bolt iron.

F. J. Baumis has resigned as president of the Shaw Crane-Putnam Machine Co., Inc., and as vice president and director of Manning, Maxwell & Moore, Inc., to become associated with the **Ingersoll-Rand Co.,** N. Y.

C. H. MacDonald, manager of the market research department of the **Colorado Fuel & Iron Co.,** has been appointed director of sales also.

W. D. Otter, San Francisco, has been appointed Pacific Coast representative of the **Locomotive Finished Material Co.,** Atchison, Kan.

E. E. Calvin, who retired November 1, as vice president in charge of operations, Union Pacific, has been elected secretary of the **Calvin Supply Co.,** dealers in railway supplies and materials.

Walter L. Conwell, president of the **Safety Car Heating & Lighting Co.,** New York, has been elected also president of the **Vapor Car Heating Co., Inc.,** Chicago and the **Vapor Car Heating Co. of Canada, Ltd.,** to fill the unexpired term of **Egbert H. Gold,** deceased.

Vernon B. King

Vernon B. King, service manager at Toronto, Ont., for the **White Motor Co.,** of Cleveland, has been promoted to export service manager. He will have charge of foreign truck and bus service throughout the world for that company. Mr. King started with the White Co. in the technical apprentice class of 1926, having been selected from the class of 1925, University of Toronto. After completing his course he was for a time designing engineer for Bickle Fire Engines, Ltd., Woodstock. A year ago he rejoined the White organization as service manager.

C. A. Liddle, vice president of the **Pullman Car & Mfg. Corpn.,** has been elected president, to succeed **D. A. Crawford,** who has been elected executive vice president of the **Pullman Co.**

The **General American Tank Car Corpn.** has acquired the **Buffalo Steel Car Co.,** Buffalo, and will operate it as a subsidiary.

The **National Equipment Corpn.,** Milwaukee, has acquired the following companies: The Parsons Co., Newton, Ia.; the Insley Co., Indianapolis; the Koehring Co., Milwaukee, and the T. L. Smith Co., Milwaukee. The two former companies will continue under the same management.

The Louisville Frog & Switch Co., and the Southern Signal Corpn. have merged as the **Louisville Frog, Switch & Signal Co. F. W. Carter,** president and general manager of both companies is president of the new company.

The consolidation of the **Grasselli Chemical Co.,** and **E. I. duPont de Nemours & Co.,** has been approved by stockholders of the Grasselli Co.

The **Standard Coupler Co.** announces that its Chicago office has been moved from 122 So. Michigan ave. to the State Bank Bldg., La Salle and Monroe streets.

The **International Derrick & Equipment Co.** of California announces that its general office has been moved from Torrance to 408 Subway Terminal building, Los Angeles.

Obituary

Robert Hamilton Allison, general manager of the western lines of the Santa Fe and vice president and general manager of the Panhandle & Santa Fe, with headquarters at Amarillo, died in Chicago November 10, aged 57. Leave of absence was granted Mr. Allison November 1. He entered railway service when he was 16 years old as a warehouseman on the Norfolk & Western. He became a dispatcher on the Santa Fe in 1902, was made chief train dispatcher in 1903 and trainmaster at Chillicothe, Ill., in 1905. He was appointed general manager of the western lines in 1927.

John S. Sneyd, assistant treasurer of the Reading, died November 12 at his home in Roxborough, aged 69.

Walter B. Pollock, former manager of the marine department of the New York Central, died November 20, aged 72.

John K. Shaw, vice president and director of the Celotex Co., was killed November 2 while duck hunting near Arlington, S. D., by an accidental discharge of his gun.

August E. Ruffer, assistant vice president of the Erie, died Nov. 14 at his home in Rutherford, N. J., after a short illness. Mr. Ruffer was 53 years old. He had been with the Erie for 39 years.

John A. Snyder, former general construction superintendent on the western division of the New York Central, died November 21, aged 69.

C. G. Henderson, master mechanic on the Southern, died at his home in Charleston, November 17, aged 47. He had been with the Southern more than 30 years.

Lucius W. Wakeley, assistant to the passenger traffic manager of the Burlington from 1922 to 1926, with headquarters in Chicago, died November 22 at Pelican Lake, Wis., from pneumonia.

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Memphis, Tenn.

Edward J. Pearson, recently retired president of the New York, New Haven & Hartford Railroad, died at Johns Hopkins Hospital, Baltimore, Dec. 7.

Mr. Pearson, whose resignation as head of the railroad was given because of ill health, had been at the hospital since October 23. The immediate cause of his death, it was announced, was cerebral hemorrhage.

Mr. Pearson became president of the New Haven in 1921, when it was threatened with financial ruin and powerful banking interests were endeavoring to force it into receivership. Mr. Pearson fought the receivership and by his practical railroading skill was able to bring the road to what is regarded as one of America's models of railroading efficiency. The road's common stock, having sold as low as $9.62½ in 1923, recently has sold as high as $80.25. A dividend of $1 was paid on the stock in April, another of $1 in October and only ten days ago it was placed on a $4 annual basis. Mr. Pearson's tireless efforts to revive what long has been known as "New England's Baby," ruined his health, and on November 27, when the directors placed the stock on a regular dividend basis, they were forced to accept his resignation.

Pearson's career prior to his presidency of the New Haven had to do with construction of terminals and freight yards. He was a mid-westerner by birth but New Englander by heritage.

Edward J. Pearson

He was born in Rockville, Ill., October 4, 1863.

Known among western railroad executives as "Terminal" Pearson, he built the first "hump" freight yard on the Pacific Coast and developed the immense yards and "hump" on miles of salt meadows at New Haven and on the border of the Connecticut River at East Hartford.

He left Cornell University in 1883 as a civil engineer for the Northern Pacific Railroad. In 1916 he went to the New Haven system as vice president to handle operations and construction, having been called from the Texas & Pacific railroad, of which he was vice president. He had been vice president of the Missouri Pacific system, helping rebuild it and developing operating methods. He had constructed terminals at St. Louis, Kansas City, New Orleans and Chicago.

Harrison B. Hodges, who retired as purchasing agent of the Long Island in 1922, died November 24 at his home in Hollis, L. I.

John M. Hoar, assistant engineer of the Tennessee division of the Illinois Central, with headquarters at Fulton, Ky., died at his home there November 14, aged 52.

Ford Harvey, president of the railroad restaurant, hotel and dining car service founded many years ago on the Santa Fe by his father, Fred Harvey, died December 13, at Kansas City of pneumonia following an attack of influenza.

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NUTS
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Transportation

The National Monthly of the Transportation Industry

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America's Longest Tunnel Is Finished

Vol. IV January 1929 No. 1

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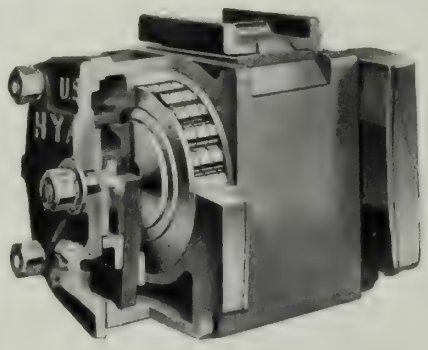

The Hyatt Roller Bearing Journal Box sectioned to show bearing in place.

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22
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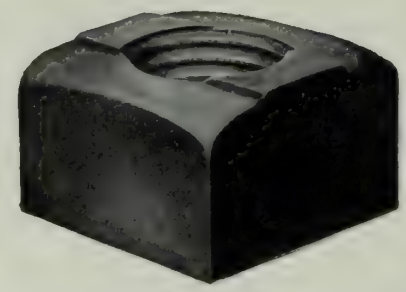

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Transportation

(Reg. U. S. Patent Office)

The National Monthly of the Transportation Industry

JANUARY, 1929

VOLUME FOUR NUMBER ONE

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IN THE CAMERA'S EYE — *Pictorial Review*

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AMONG THE MEN WHO DO THE WORK

LITTLE STORIES OF BIG MEN

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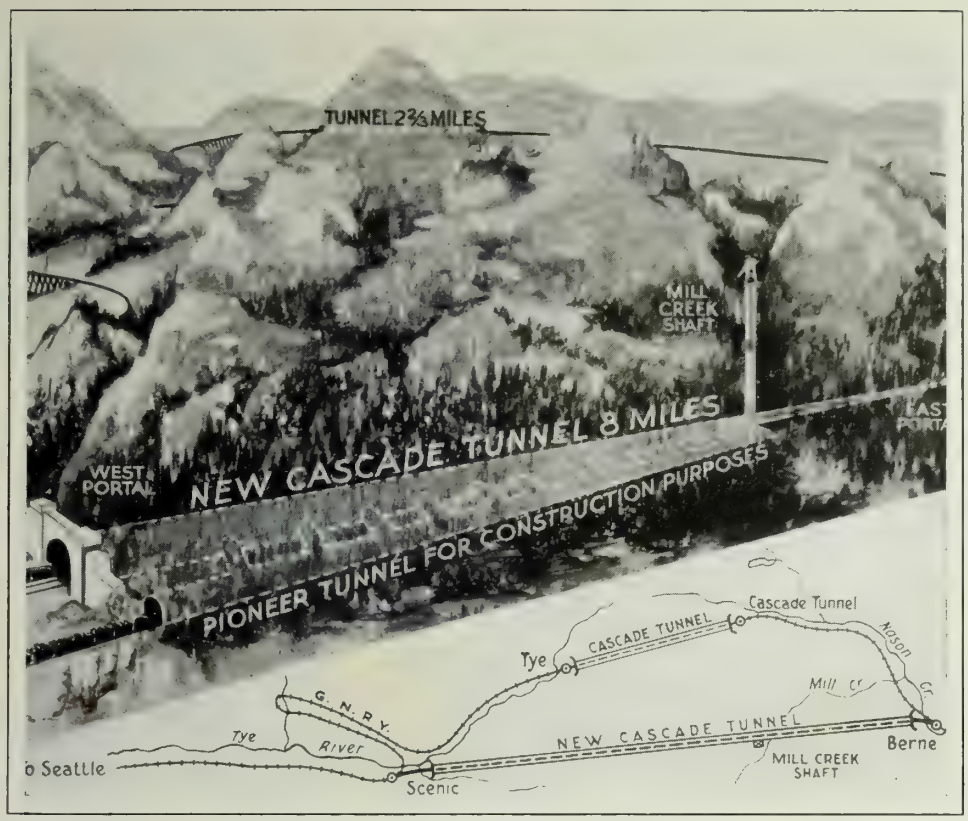


America's Longest Tunnel Finished

Cascade Project in Operation January 12

By Ralph Budd

President Great Northern Ry.

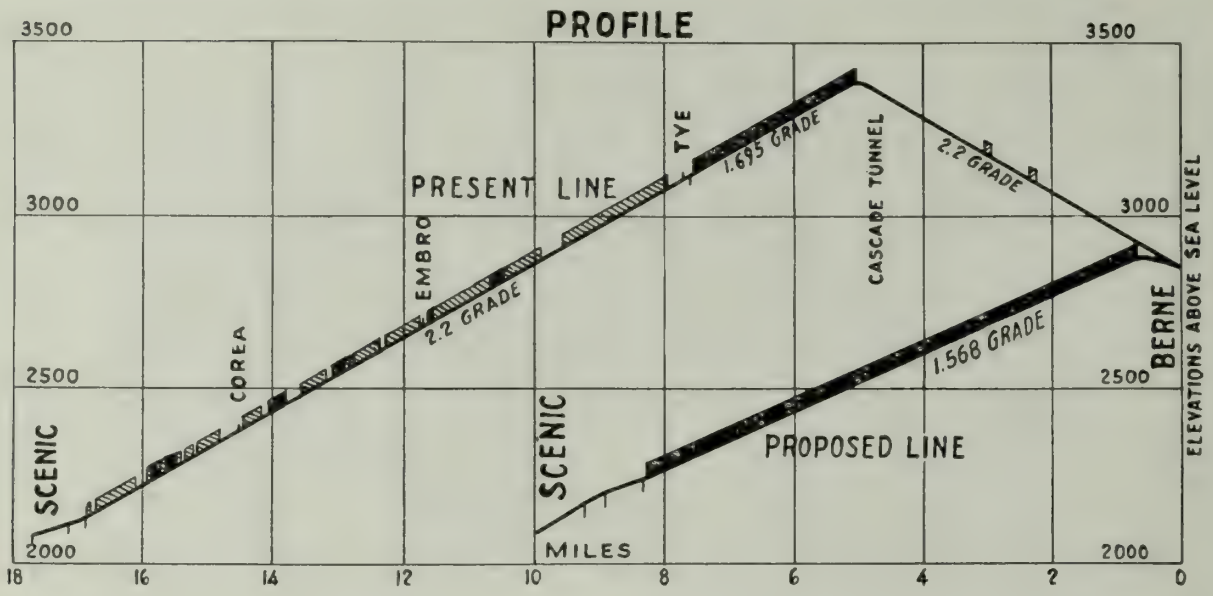
As might be expected, I suppose, the principal development upon which all Great Northern men have their minds fixed right now is the eight-mile tunnel in western Washington, in the Cascades, through which we expect to begin operating trains January 12, the longest railway tunnel in the western hemisphere, and the fifth longest in the world.

The completion of the new Cascade tunnel, three years from the time it was begun, will shatter by years all records for speed in driving long tunnels. Driven straight as a rifle-bore and lined throughout with concrete walls, the finished tunnel, excellently ventilated and electrically operated, will represent the finest achievement in tunnel construction and operation anywhere in the world. Coincident with the opening of the tunnel the Great Northern's entire route through the Cascades, a distance of 75 miles, will be changed from steam to electrical operation.

The new Cascade tunnel and the relocation of 20 miles of approach on the east slopes of the Cascades, with the electrification of the entire Cascade crossing, constitutes the most important refinement of a transcontinental route ever undertaken. The cost of the Great Northern's improvements in the Cascades will be approximately $25,000,000.

These improvements mark another great step forward in bringing the West Coast closer to the East, and eliminating the mountain barrier which separates the Pacific slope from the Great Plains and eastern manufacturing centers. They will expedite the flow of commerce, contribute to the comfort of travelers, and assure to both year-around dependability and safety. Passenger trains will cross the Cascades in one hour's less time while all freight movements will save three hours.

The new Cascade tunnel and the relocated east approach shorten the crossing nine miles, lower the summit 502 feet, eliminate curvature equivalent to more than six complete circles, reduce the mileage of maximum 2.2 per cent grade crossing the Cascades by 18 miles, eliminate nearly eight miles of massive snowsheds, reduce the mileage running through tunnels and snowsheds by more than 2.19 miles, and, by reason of the fact that the new approach will have no serious snow problem while the new tunnel will carry the tracks under the zone of heaviest snowfall on the entire Great Northern system, these improvements will eliminate for all time the delays incidental to snow and slides on the mountain sides, and wipe out the heavy expense of keep-



ing the tracks open in the winter. The saving resulting from the elimination of the snow problem will be approximately $600,000 a year. While these savings and advantages immediately benefit the railway company, and are expected to repay over a period of years the cost and carrying charges of these improvements, the public as well has a vital and also immediate interest in these and all similar improvements in the nation's transportation facilities.

The Great Northern crosses the Cascade Mountains at a point where the range is pinched into a high but narrow ridge. Reconnaisance of this route was made in 1890 by John F. Stevens, at that time principal assistant engineer of the Great Northern. The original line over the Cascades, completed in 1893, crossed the summit by means of a series of switchbacks. So precipitous were the upper slopes of this range that they afforded little opportunity to wind the tracks up and over the summit except by resort to the switchbacks, of which there were eight and which, of course, made it necessary in crossing the summit to reverse the movement of trains a corresponding number of times. These switchbacks were eliminated in 1900 when the Great Northern's present Cascade tunnel, 2 2-3 miles long, was completed. Its construction was hailed as the most important engineering achievement and railway improvement ever consummated in the Northwest. This old tunnel, so important in its day and soon to be abandoned, shortened the line nine miles, reduced elevation 677 feet (3383 feet as compared with 4060 feet), and eliminated curvature (2332 degrees) equivalent to 6½ complete circles.

The further improvement of this crossing was authorized by the board of directors of the Great Northern on Thanksgiving day, 1925. It involved the two refinements anticipated by Mr. Stevens: the construction of an eight-mile tunnel piercing the backbone of the Cascade range; the relocation of 20 miles of approach on the east and most precipitous slope of the Cascades. To these two improvements was added a third, the electrification of the entire Cascade mountain crossing. With the completion of these three refinements the Great Northern railway will be able to run its passenger trains between St. Paul and the Pacific Coast in either direction without using helper engines at any place. Westbound freight trains also will move the entire distance from St. Paul to the Pacific Coast without using helper engines.

On November 26, 1925, the day the directors of the Great Northern Railway authorized the construction of the new Cascade tunnel, a contract was entered into with A. Guthrie & Co., of St. Paul. The plan of attack and type of equipment had been discussed for several weeks so that only a few days were required to whip these plans into definite shape. The vanguard of the contractor's forces appeared on the ground early in December, 1925, and a month later the actual driving of the gigantic bore began. Since that time tunneling operations have continued day and night, holidays included. While study had indicated it would be possible to complete the tunnel within three years, it was realized that this would require progress twice as rapid as any previous record for construction of a tunnel of this character.

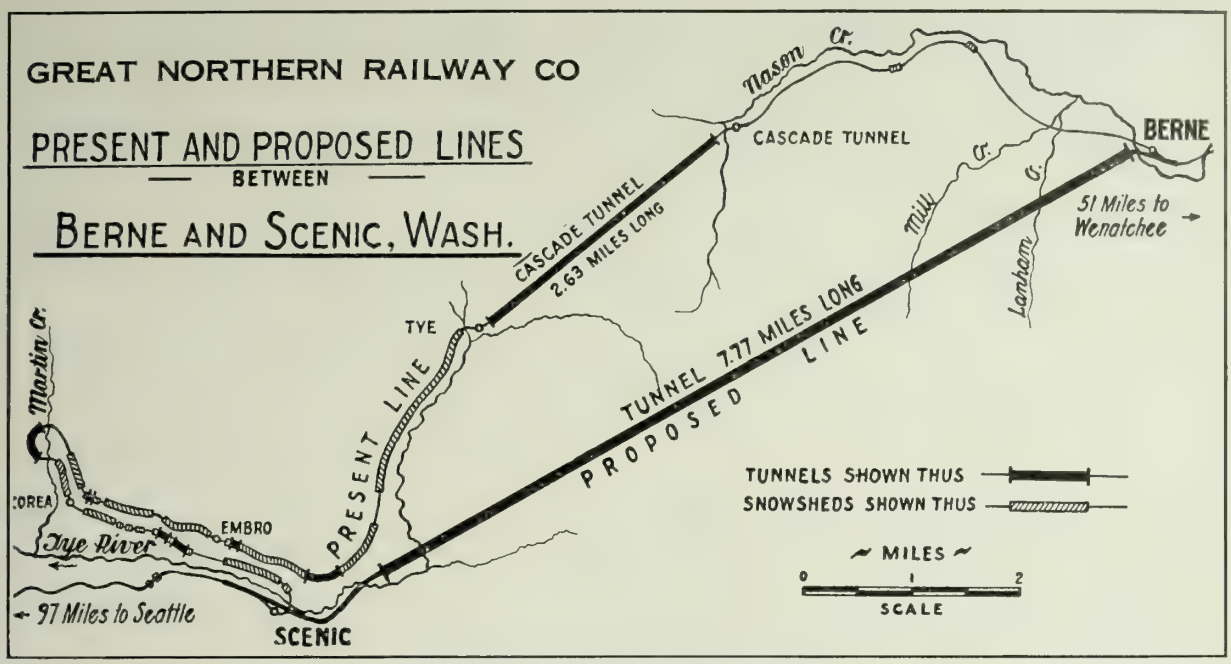
America's Tunnels

Name — Location	Length
New Cascade—Great Northern	7.79 mi.
Moffatt—Colorado	6.11 mi.
Connaught—Rogers Pass, B. C.	5.02 mi.
Hoosac—Massachusetts	4.38 mi.
Mount Royal—Montreal	3.09 mi.
Cascade, G. N.—Washington	2.63 mi.
Twin Peaks—California	2.27 mi.
Snoqualmie Pass—Washington	2.25 mi.

The World's Longest Tunnels

Name — Location	Length	Cost
Simplon 1*—Switzerland-Italy	12.4 mi.	$16,000,000
St. Gothard—Switzerland-Italy	9.26 mi.	11,300,000
Loetschberg—Switzerland-Italy	9.0 mi.	10,060,000
Mt. Cenis—France-Italy	7.97 mi.	14,580,000
New Cascade—Great Nor. Ry.	7.79 mi.	14,000,000
Moffatt—Colorado, U. S. A.	6.11 mi.	14,853,000

*—A double tunnel. The second bore was completed in 1921.



By the end of three months, in midwinter, three modern construction camps had been built; 350 men were working at the west portal, 102 at the east portal, 170 at the Mill Creek shaft. The Pioneer tunnel had been driven 448 feet; Tye River incline, 118 feet; east portal centerheading, 464 feet, and the Mill Creek shaft sunk 61 feet. The bulk of the tunnel driving equipment had been purchased and a large part of it was either on the ground or coming. Field work was carried on in midwinter (1925-1926), in a heavily wooded, rugged, mountainous region in the face of blizzards, heavy snowfalls and below-zero weather. Remarkable accuracy was attained notwithstanding.

* * *

Instead of enumerating the technical details it is enough to say here that instead of beginning at the east and the west ends of the main tunnel and tediously boring a hole from each portal until the two holes met, which probably is the popular conception of tunnel construction, the Mill Creek shaft, and the Pioneer tunnels, as they were called, enabled the tunneling forces to attack the route of the main tunnel at several different faces. As these various points of attack were opened up and connected, the crews moved still farther ahead, the Pioneer tunnel and its cross-cuts by that time having been advanced several hundred feet farther. The contractors were thus able to employ as many as 1793 men in the tunnel operations.

The pioneer tunnel served still other important purposes. Through it the trains carrying workmen and supplies and removing rock operated without interfering with work in the main bore. It contributed largely to the solution of the water problem, draining it off whenever encountered. Through it were run the huge air conduits which supplied all parts of the workings, the compressed air pipes which supplied power for the drills and shovels, and the power lines which operated other machinery and lighted the workings. By keeping the main bore free from these obstructions, it was possible to follow enlargement operations with the work of lining the excavation with the massive concrete walls.

Ralph Budd,
President Great Northern.

Illustrative of the progress made possible by this plan of attack is the fact that on October 20, 1928, the day the first continuous hole was opened through the main tunnel, 6½ miles of the tunnel already had been lined with concrete, another mile had been enlarged to full size and was ready for concreting, and five miles of electrical installation had been completed.

Three times in as many months in 1926, the tunneling forces broke their own and the world's record for tunnel advance in a 31-day period. Twice again, in the following year, new records were established.

Construction of the tunnel involved the moving of approximately 875,000 cubic yards of rock and earth, and the placing of 264,000 cubic yards of concrete.

The improvement program in the Cascades is under the general direction of J. R. W. Davis, chief engineer, St. Paul. Colonel Frederick Mears, assistant chief engineer, Seattle, is the engineer directly in charge. Much of the preliminary work was done under A. H. Hogeland, former chief engineer and now consulting engineer. J. C. Baxter of St. Paul, vice-president of A. Guthrie & Company, Inc., the contractor, developed the splendidly synchronized construction program. The contractor's general superintendent is W. E. Conroy.

More Efficiency and More Economy

By R. H. Aishton

President, American Ry, Assn.

RAILROAD performance in 1928 has been marked by the greatest operating efficiency and economy ever attained by the carriers of this country, and has resulted in the highest character of service, during the last 12 months, ever afforded the public. This increased operating efficiency was created in the face of reduced traffic, during the first ten months, and despite the fact that the railroads, particularly since 1923, have made rapid strides forward every year in improving their methods of operating in order to maintain adequate and dependable transportation. The outstanding operating records established in 1928 follow:

1. Fewer trains and locomotives, in proportion to the amount of traffice hauled, were required in 1928 than at any previous time.

2. The average load per train was the highest ever reported, having been 2.6 per cent greater in the first ten months of 1928 than in the same period in 1927.

3. The distance traveled every day per freight train averaged more than 307 miles, an increase of approximately 20 per cent over that for 1923, when the average was 259 miles.

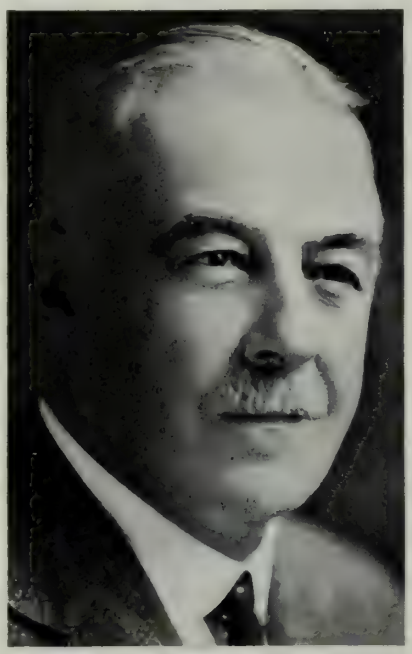
4. The number of tons of freight moved one mile by a train per hour was greater in 1928 than in any year.

5. Freight traffic was handled in 1928 with the greatest conservation of fuel ever reported, coal consumption per thousand gross ton miles having been 125 pounds compared with 129 pounds in 1927.

This performance record has been largely brought about by investing six and a half billion dollars of capital expenditures since 1920 for new and improved equipment and other facilities used for the transportation service. Due to the splendid record of the railroads in 1928 in the matter of increased operating efficiency and consequent saving in operating expenditures, the carriers, during the current year, were able to counterbalance the effects of reduced traffic and increased wages.

Preliminary reports for the year show that the Class I railroads as a whole had a net railway operating income in 1928 of $1,180,000,000 or a return of 4.65 per cent on their property investment. Rigid economy, efficiency, and reduced operating budgets prevented the rate of return in 1928 from being less than it actually was. Class I railroads in 1927 had a net railway operating income of $1,085,000,000, which was a return of 4.28 per cent on property investment. The estimate of earnings for the 12 months of 1928 is based on complete reports for the first ten months and an estimate by the bureau of railway economics as to earnings in November and December.

Freight traffic was slightly less in 1928 than in 1927 and considerably under 1926. Loading of revenue freight for the year amounted to approximately 51,566,000 cars compared



R. H. Aishton, President American Railway Ass'n.

with 51,633,000 cars in 1927 and 53,098,819 cars in 1926. The estimate for 1928 is based on actual loadings for the first 49 weeks in 1928 and an estimate for the last three weeks in the year.

Loading of revenue freight exceeded one million cars in 24 weeks in 1928 compared with 28 weeks in 1927 and 27 weeks in 1926. The greatest loading for any one week in 1928 was for the week of September 29, when the total was 1,196,768 cars. The peak week in 1927 totaled 1,129,055 cars, and in 1926 it was 1,208,878 cars.

Shipments of grain and grain products, ore and miscellaneous freight in 1928 showed increases over the corresponding period of the preceding year while live stock, coal, coke, forest products and merchandise less than carload lot freight showed reductions, for the most part relatively small, however.

Measured in net ton miles, the volume of freight handled in 1928 was approximately the same as in 1927. For the first ten months, the volume of freight traffic handled amounted to 397,368,913,000 net ton miles compared with 402,852,738,000 net ton miles in 1927. On the basis of actual reports for the first ten months, it is estimated that the total for the year will amount to 475 billion net ton miles. This compares with 474,683,000,000 net ton miles in 1927.

Passenger traffic in 1928 was less than for any year within the last twenty, amounting to 31,500,000,000 passenger miles. This was a decrease of 32.8 per cent under the record year in 1920.

The railroads installed in service 57,582 freight cars and 1,333 locomotives in 1928 compared with 75,386 freight cars and 1,955 locomotives in 1927. Ownership of freight cars by Class I railroads on December 1 this year was approximately 2,287,901 cars or eight-tenths of one per cent less than on December 1, 1923, while the average carrying capacity per car owned increased two tons per car or 4.6 per cent. The number of locomotives owned by Class I railroads on December 1 was a decrease of 5,701 locomotives or 8.8 per cent compared with the same date in 1923, but the average tractive power increased over 11 per cent.

Despite the decrease in the number of locomotives owned the railroads had at no time in 1928 fewer than 4,958 serviceable locomotives stored and in good repair which they did not find necessary to place in service.

Despite an exceedingly heavy movement of grain and grain products as well as of perishable traffic, the railroads met traffic demands without difficulty in 1928 except for a few instances of local car shortages, and then only of brief duration. Not only in respect to loading of perishable traffic, which has been the

heaviest in the history of the railroads, but also as to all other traffic reports show that the movement was handled more promptly in 1928 than ever.

Capital expenditures for new equipment and additions and betterments to property used in connection with the transportation service amounted to $650,000,000 in 1928 compared with $771,552,000 in 1927.

The amount of capital expenditures in 1928 for new equipment was $215,000,000 compared with $288,700,000 in 1927, a decrease of $73,700,000 or 25.5 per cent below the preceding year. Roadway and structures expenditures aggregated $435,000,000 compared with $483,852,000 for 1927, a reduction of $48,852,000 or 10.1 per cent for the year just ended.

The Santa Fe Still Extending

By W. B. Storey

President, A. T. & S. F. Ry.

With the Santa Fe Railway and with the majority of the railroads in our country, the first half of 1928 found traffic somewhat below normal, although in the Northwest the situation was better. Recent months have brought about an improvement and car loading has been larger than a year ago.

The chief factors in the improvement on our lines are excellent crops of wheat and corn and a larger cotton crop than in 1927; the movement of citrus fruit and grapes has been smaller. Merchandise, coal and lumber all show moderately increased movements over a year ago, while there has been a marked decline in oil due to building of pipe lines, without there being opened any new oil fields in territory served by us. The live stock industry, manufacturing and mining have been in healthy condition, and oil is rather better but still threatened with over-production.

During the year our company has extended its lines by acquiring the Orient Company, having about 1000 miles of main line in the United States and Mexico, and of the Clinton & Oklahoma Western, having 58 miles of line in Oklahoma, which is being extended to connect with the Santa Fe at Pampa by construction of 80.6 miles of new line. Some 38.24 miles of double track have been added and about 780 miles of new rail have been laid, including 491 miles of 110-lb. rail replacing lighter weights.

The outlook for 1929 is encouraging. The territory east of the Rockies is in much better condition so far as moisture is concerned than a year ago (quite too much in southeastern Kansas) and wheat is entering the winter in a decidedly more satisfactory condition, although the present year shows that it is the finish that counts. Citrus fruit promises a much larger yield, barring frost damage.

We have the building of several branch lines on our program, subject to authorization by the Interstate Commerce Commission, while about the usual program of additions and

W. B. Storey.

improvements to equipment, roadway and structures will be maintained in order that we may have our plant in good condition for any demand upon it.

Normal Traffic on Iron Range Railroad

By H. Johnson

President, Duluth & Iron Range

We have not made any particular outstanding changes during this year, and I do not anticipate anything very material for 1929. Business has been about normal, and what it will be the coming twelve months I cannot say.

We have no operation of trucks and passenger buses. As to airplanes, I do not think it will have any effect on our revenue. We are not contemplating the establishing of coordinated rail and airplane service. I believe the effect of airplanes on railroads will be negligble.

It Was a Normal Year

By Hale Holden

President, C. B. & Q.

Preparation of our budget for 1929 has not advanced far enough so that I can describe the amount or character of the work, except to say that we contemplate about the same expenditures as for 1928, and on very similar classes of work.

We do not contemplate extending the operation of trucks and passenger buses within the coming year. We have no definite plans as to coordinated rail and airplane service. We feel that eventually airplane transportation of passengers will be extensive, although the growth of the lines probably will be slow, and will not for many years have an appreciable effect on rail passenger revenues.

We are completing a normal year in expenditures on track, buildings and equipment, and the property is in better condition to handle traffic promptly and efficiently than at the close of last year.

Four Year Program Finished

By J. S. Pyeatt

President, D. & R. G. W. Ry.

During the past year our improvement program, budgeted over a period of four years, from the beginning of 1925, has been completed, and we have expended for additions and betterments to the property during that time $21,400,000, with the additional sum of $5,470,000 chargeable to operation, incident to the improvement work. During 1928

our expenditures on this program amounted to a total of $4,900,000, principally on rail renewal, ballasting, grade and line changes, automatic block signals, additional openings, double track, yard tracks, new passing tracks and extensions, on the main line between Denver and Ogden.

While additional improvements, in a relatively moderate degree, will be continued in the future, we consider that the major improvements necessary to enable us to give dependable and satisfactory service are accomplished.

We are constantly extending our motor bus and truck service, and our policy is eventually to cover our entire local territory where such service is demanded by the public and can be operated at a profit.

I believe airplane travel for long distances will rapidly develop, and that eventually a very large portion of the transcontinental passenger traffic will use a combined railroad and airplane service.

Many Improvements on the L. & N.

By W. R. Cole

President, Louisville & Nashville

In common with most of the railroads of the country, the L.&N. has not enjoyed, in 1928, the same prosperous conditions that prevailed during the previous years, due largely to the somewhat unsatisfactory situation in the coal industry, which constitutes this company's largest percentage of traffic. However, our operations as a whole have been reasonably satisfactory, and it is believed now that with the political situation behind us and with business conditions generally in good shape, the volume of traffic for the coming year will be as great as, if not greater than, in 1928.

Although there was a decline in the amount of business handled in 1928, this company was quite active in the prosecution of its improvement work. We completed several large projects in addition to the miscellaneous work normally required to take care of existing traffic. Probably the most important single project was the work on the construction of the new line between Chevrolet, Ky., and Hagans, Va., about 14 miles in length, to form a connection between this company's lines and the Carolina, Clinchfield & Ohio R.R., which was leased by this company and the Atlantic Coast Line a few years ago. This project involves an aggregate expenditure of nearly $5,300,000. The work was started in December, 1927, and substantial progress has been made during the current year. Another large appropriation, amounting to $1,375,000, was made for additional mechanical facilities at Mobile, Ala., and the construction of certain passing tracks to permit the use of more powerful locomotives.

A program of bridge reconstruction to provide for heavier power, amounting to nearly $1,200,000, was authorized and largely completed. We also finished work on the construction of other large projects on the system which had heretofore been authorized, as well as the construction of some double track work to facilitate the handling of coal from the fields of Southeastern Kentucky. All of this

W. R. Cole.

work actually prosecuted during the year, of which some was completed and placed in service, with the acquisition of new equipment, involved an expenditure to capital account during the first nine months of 1928 amounting to $9,350,000. Similar expenditures being currently made will, of course, largely augment the total by the end of 1928. These numerous improvements are a continuation of the policy of the company to provide facilities in keeping with the present and prospective public demand, and constitute a part of the work outlined several years ago.

It will, perhaps, be of interest to state that since the end of federal control the L.&N. has appropriated nearly $200,000,000 for improvements designed to enlarge its transportation capacity. Such expenditures embrace the acquisition of modern equipment having greater power and capacity; the construction of additional yards, additional passing tracks, the building of stronger, more modern trestles, and particularly the construction of approximately 160 miles of double track on its heaviest traffic producing divisions. The resultant benefits to the public in expedited service and to the company in more economical operation, have been very substantial; and of course the advantages will continue to accrue in an accelerated degree with the constant growth of traffic. As one or two examples I might point out that during the past few years the carload on the L.&N. has increased 32 per cent and the car movement 28 per cent; the average train speed has been increased by 23 per cent and the gross ton miles per train hour have increased more than 50 per cent.

This company does not employ the so-called budget system in the prosecution of its improvement work, and consequently our program for 1929 has not been prepared. However, we have recently authorized expenditures for new equipment and new rail requirements for 1929 aggregating $10,500,000. In addition we are now carrying open authorities representing work which either has not been started or has not been completed, aggregating a total of $7,800,000. This constitutes a definite program covering work to be prosecuted during 1929 amounting to $18,300,000. It is safe to say that the necessary requirements to be authorized as the year 1929 progresses will very materially enlarge the appropriation mentioned.

This company does not employ any

trucks or buses in its transportation service.

The development of aviation has made remarkable progress in the past few years, and its growing importance as a transportation medium, particularly for those who desire to avail themselves of this highly specialized character of service, cannot be too greatly emphasized. Although undoubtedly it will continue to increase in practicability and usefulness, yet its field is necessarily limited. It can never, of course, supplant the steam railroad for long distance and heavy duty traffic. As a supplemental or coordinated service the airplane ultimately may prove a valuable adjunct to the railroads, but it will, perhaps, be some time before this character of service becomes widespread. The L.&N. has not contemplated the establishing of airplane transportation in conjunction with its rail service.

Turkey plans to construct 1000 miles of new railways at once.

A Motor Train De Luxe

By N. L. Howard

President, Chicago Great Western

The Chicago Great Western has enjoyed a fairly prosperous year during 1928; both gross and net income will show good increases over 1927 and nearly equal those of 1926, which were the best we have had since the war. These results grow out of an increase in freight traffic and economy and efficiency in operation.

A large factor in preventing greater earnings was the steady decline in passenger revenue due to the constantly increasing use of privately owned automobiles and bus service which has practically wiped out all local short haul travel by railroad. Steam train service has been supplanted by motor trains which, while they have reduced operating costs, have not increased travel and the only result is the loss has been less.

With the thought of holding travel between important cities within reasonable distances, and handling it at as low a cost as possible, we have developed the idea of providing de luxe motor train service which will be fast and reliable, and have selected the line between Minneapolis, St. Paul and Rochester, Minn., as the place to install the first train.

There has been fitted up in our shops at Oelwein, Iowa, and now ready to go into service, a motor train which, I believe, will be the most luxurious of its kind in service on any road. The train will consist of three cars, the first being a combined motor and baggage car. The motor is a model 146-300 h.p. built by the Electro-Motive Corpn., Cleveland, O.; the second a coach, and the third a combination observation-parlor-lounge-cafe car with two Pullman sections. All of the most modern conveniences now in use on railroad trains will be supplied for this train, and the cars will be models of elegance.

The train will be called the "Blue Bird", the exterior being painted blue and the decorations, carpets and upholstering in the different cars following that color scheme. We already have in service between these points a non-stop train known as the "Red Bird" which leaves the Twin Cities in the morning and returns from Rochester in the evening; the "Blue Bird" will leave Rochester in the morning and return from the Twin Cities in the afternoon.

We operate no trucks or passenger buses and are not contemplating establishing coordinated rail and airplane service. While I believe the use of airplanes for passenger transportation will grow, I do not believe it will have any material effect on our revenues, at least for a time. It is the automobile, both privately owned and commercially used, that is reducing passenger revenues to a point where there is no profit in handling the business.

An Optimist About 1929

By W. L. Ross

President, Nickel Plate Line

We believe that from all indications available at present the railroad business for 1929 will slightly exceed that of 1928, and that the net earnings should at least equal or be a little better than either 1927 or 1928.

At this time it is impossible to

Observation Room, Rear of the Blue Bird, New Motor Train De Luxe. We Can See What Makes It So Popular.

forecast what our approximate expenditures for improvements for 1929 will be as our budget is not completed. We expect to spend during the year 1928 approximately $11,000,000 in additions and betterments, and my forecast is that our authorizations for 1929 should be about equal to 1928.

Our new freight facilities completed in Cleveland are ideally located, and we are daily attracting new business. Our new food terminal unit, in Cleveland, is now in process of construction and when completed early in 1929 we believe will attract to our line a considerable volume of new business for the future.

They'll Be Busy on the K. C. S.

By C. E. Johnston

President, Kansas City Southern

Our budget for 1929 is not far enough along intelligently to determine just what we shall be able to do in a general way; but we do contemplate one job, the establishing of a terminal at Dowling, Texas, between Beaumont and Port Arthur, in order to get away from the congestion brought about by the tremendous growth of Port Arthur and Beaumont as cities, and in order more satisfactorily to serve the industries in the Sabine district, as well as provide for our line operations a more modern and convenient terminal.

The trackage will approximate 20 miles, composed of transportation and classification yard and tracks to serve the enginehouse car repair shops and miscellaneous mechanical facilities. The latter will include turn table and eight-stall enginehouse, machine shop for light locomotive repairs, power plant including generator and air compressor, and power distribution lines.

Other facilities at that terminal will include storehouse with office and locker rooms, a complete water storage and distribution system with ample pressure for fire protection, facilities for handling fuel oil, sanding facilities, and complete sewer system, both storm and sanitary, with station and office building. The estimated total cost is $825,000. While we contemplate starting it early in the year and prosecuting the work vigorously, it is possible that it may be spread beyond 1929. During 1928 our principal improvement items are as follows:

Laying of 11 miles of 115-pound, and 12 miles of 127-pound rail with a view to determining the most serviceable and economical section of rail for our standard.

Installation of four 80,000-barrel capacity fuel oil storage tanks to take advantage of the favorable market conditions.

Starting of work on the construction of a low-grade line about 13 miles in length between Leeds and Grandview, in Jackson County, Mo., to provide an unbroken main line of our ownership (we now operate over tracks of another company) and give us a 0.5 per cent. compensated maximum grade over our first operating district out of Kansas City as compared with 1.6 per cent. grade as at present. The project is estimated to cost $3,000,000, and will be approximately 30 per cent completed at the end of the year.

The completion of a general program started about two years ago of grade reduction and separation of crossings, highway and railway, at Shreveport, La. This will reduce our present grade to one-half of one per cent maximum for several miles immediately south of our Shreveport terminals, and will eliminate the hazard of heavy traffic grade crossings. This year's work is estimated to cost approximately $1,000,000, and it will be about 75 per cent completed at the end of 1928.

Additional water facilities have been provided at our principal shops, at Pittsburg, Kan., by installation of a deep well with modern motor-driven centrifugal type of deep well pump.

A new water supply consisting of surface reservoir, with two wayside tanks at each end of a long passing track, at Loring, La., estimated to cost $55,000.

On July 15, we put into effect an improved passenger train schedule with 24-hour service between Kansas City and Port Arthur as compared with approximately 28 hours prior to that time. With this service we began a program of steel-plating and otherwise improving our existing passenger train cars, 26 units in all. A short time prior to the beginning of this fast schedule we began the operation of cafe-lounge cars providing, for the first time, train dining service on the Kansas City Southern, our passengers theretofore having been served at eating houses.

We are not operating any trucks or passenger buses, and do not contemplate doing so within the next year, nor do we contemplate the establishing of coordinated rail and airplane service.

While our gross earnings have diminished about $800,000, or approximately 4¼ per cent up to the last data available, we are less than 2 per cent behind in our net earnings, and expect the year entirely to wipe out the decrease in net. This has been accomplished mostly in transportation and general expenses, as our ratio of maintenance, both way and equipment, to gross earnings remains practically the same as the year before.

We have started work on the elimination of five railroad grade crossing stops by the installation of interlockers, which probably will not be completed before the first quarter of 1929.

Our bridge renewal and reinforcement program, as well as our rail renewals, have been carried along in about the uniform annual manner.

Better Times in the Northwest

By Charles Donnelly

President, Northern Pacific Ry.

Economic conditions in the Northwest in 1928, for a second consecutive year, were marked by consistent improvement. I look for further improvement in 1929. The Northern Pacific had a good year. The grain and fruit crops were large, and prices of live stock encouraged heavy movement to market. An encouraging development in the last 12-month period was the increased demand for farm lands. And these lands were sold, not to speculators, but to capable farmers, promising a contribution to the growth and development of the territory.

The railway company, at a cost of $2,500,000, completed in 1928 among its building projects, a new line in

eastern Montana from Glendive to Brockway via Circle, a distance of 62 miles. This line opened to transportation more than 1,000,000 acres of farm lands, and settlement of that territory has progressed. In western Montana $1,000,000 was expended in relocating a line south of Missoula as a means of cooperating with a new $1,500,000 sugar beet plant, which was completed in the year at Missoula.

The late months of 1928 were marked by dry weather in the dry land wheat districts and this has had a tendency, in that area, to delay fall agricultural activities. Elsewhere normal conditions prevail.

Let's Get Rid of the Obsolete

By L. A. Downs

President, Illinois Central System

THE OUTLOOK for business in general is materially brighter at this time than it was a year ago. Indicative of the improved situation are these principal factors:

The new high levels of activity which have been reached in certain leading industries without disruption of the close relation between production and consumption which is our best preventive of economic disorder.

The further and substantial improvement of fundamental conditions in agriculture.

The great contribution which has been made by improved transportation and communication to a higher standard of living on the part of our people generally, and to the underlying stability of our entire business structure.

The continued improvement in the economic intelligence of the average American citizen, who is the source from which flows the demand for laws and other regulatory measures holding great possibilities for benefit or detriment to the welfare of business.

The irregularity of conditions in different lines of business is often emphasized. That is natural. Conditions are never uniform in all lines of business, even when the general situation is at its best or its worst, and the irregularity is bound to be especially impressive to the business man whose own line of business is most at variance with the general trend.

That conditions in various lines of business are irregular at the present time is beyond question. The relatively poor financial showing made in 1928 by the railroads of the country as a whole, compared with the great business activity and generally prosperous conditions that have characterized the year, is one case in point, and of course there are others. But such exceptions, impressive as they may be to us who are most concerned with them, should not keep us from recognizing the true state of business affairs in general; and when the whole field of business is surveyed and conditions in all lines of business are lumped together, it must be apparent that the last year has been a year of substantial business progress and that the general outlook now is better than it was a year ago.

L. A. Downs.

The improvement in agriculture is one of the high lights of the last year. Evidences of improvement are many; good crops in most cases; fairly remunerative prices for most farm products, including live stock; increased efficiency and economy in production and distribution; and all these reflected in increased sales of farm implements and other products consumed by the farm population. The improvement is of special importance because of the great influence of the state of agriculture upon business in general in all parts of the country. One of the finest results of the emphasis that was placed upon agriculture in the recent presidential campaign was an improved understanding of farm problems on the part of all the people of the country, and an increased desire on their part to have these problems solved effectively.

Other lines of business have improved during the last year. New records have been made in the production and sale of automobiles and of the many and varied materials entering into their production and use. Building has gone steadily forward, to the accompaniment of increased demands for labor and materials that are used in building. There has been increased use of electricity in industries and households. Our people have saved more than ever before. Our foreign commerce has increased bountifully, and our trade relations throughout the world have improved.

These and many other evidences of greater business activity are also reflected in a fuller measure of employment, and the high level of wages has held up, increasing in some instances. The United States continues to lead the rest of the world in the prosperity of its workingmen, and it has now come to be accepted without question that one of the strongest supports of American prosperity is the high average income of American workingmen.

It is hoped that the railroads of the country may be able to make even larger contributions to general business activity in the next year than in the last by entering more largely into the purchase of new equipment for replacement, improvement and expansion. Regardless of what view may be taken as to the future trend of railway freight traffic, there is no question about the continuing need for additional equipment with which to replace cars and engines grown obsolete, and for improvements, not only in equipment but in other facilities as well, which will enable the railroads to perform even better serv-

ice and to operate even more efficiently and more economically. That demand for the continued improvement of railway facilities knows no saturation point so long as inventive genius continues active. There are virtually no cars and engines, and comparatively few other facilities, now in use on the railroads of this country that were in existence at the beginning of the present century, and the changes of the next 30 years ought to be even more notable because of the general speeding up of the modernization process in the whole realm of industry. The railroads will continue to make these service-improving and cost-reducing improvements in their facilities to the extent that current and prospective earnings permit.

The Dwindling Passenger Revenues

By E. G. Buckland

Vice President, New Haven System

During the last year business has been somewhat lower in volume than in 1927, particularly passenger traffic. However, efficiency of operation has enabled considerable reduction in operating expenses, so that the net result for 1928 will be considerably improved over 1927. The following additional facilities and equipment have been provided:

Facilities

Additional classification tracks at Cedar Hill, New Haven, Freight Terminal.

Revision of terminal at Springfield, Mass., including additional freight platform.

New concrete and brick freight house at Boston.

Improved bulk yard facilities at Mamaroneck, N. Y.

Additional shop facilities at Readville, Mass.

Seven stall addition to enginehouse facilities at Maybrook, N. Y.

Equipment

10 three cylinder Mountain type steam locomotives.

2 electric passenger locomotives.

10 180,000-pound capacity transformer cars.

From such indications as are available at present, the traffic on the New Haven system during 1929 should be substantially the same as in 1928. Capital expenditures during the coming year should not be materially less than in recent years.

Competition of other means of transportation has had considerable effect upon the growth of traffic. It is believed, however, that railroads are doing everything possible to develop their service to meet the requirements of the public. Comprehensive highway motor coach systems have been established by the New Haven and many other railroads, which are giving a high character of service, closely coordinated with passenger train schedules, thus enabling the railroads to get a portion of the travel formerly using their trains and accomplishing economies in passenger transportation costs.

In meeting competition of the motor truck handling freight over the highways, the New Haven is affording a high class of service by establishing straight-to-destination cars wherever possible, providing overnight delivery of freight. The railroads generally have hesitated to develop motor truck operations extensively, because of the doubt of being adequately compensated out of the rates that could be established for such joint rail and truck service. Before a material amount of freight can be handled in motor trucks by the railroads, it will be necessary that appropriate regulations be imposed upon the competing motor truck lines which will prevent the selecting and handling of the highest class of traffic under conditions of equipment and personnel not possible to the railroads.

The railroads are confronted with a serious problem. Remarkable improvement has been made in recent years in the character of service provided with considerable economy in operating costs. Contrary to apparently prevailing opinion that these economies can continue indefinitely in the same large degree, the limit of further savings undoubtedly has been closely approached. While industry in general apparently believes that the railroads are entitled to a fair rate of return on their investment, individual applications for reduction in rates are very large in number and are causing constant shrinkage of revenues. A continuation of this tendency will not only make it impossible for the railroads still further to improve their service, but will endanger the maintenance of the highly satisfactory service now being rendered which has contributed so much to the general prosperity of the country at large. Adequate and dependable service is of much more importance to industry than relatively small rate reductions, the cumulative effect of which seriously impairs the railroad's ability to provide the character of service desired.

Simplified rate schedules in process of establishment by the Interstate Commerce Commission, provide a remedy in part for this situation. These new schedules will include sufficient classes of freight so that many special or commodity rates can be eliminated, thus decreasing the opportunity and necessity for many of the individual applications for reductions now being made. This will also relieve the commission and the railroads of a large amount of work now necessary in reaching conclusions on these rate matters.

Reading To Have Busy Year

By Agnew T. Dice

President, The Reading Co.

I see no reason why 1929 should not prove to be a better business year than 1928. There is every indication that the country will enjoy continued prosperity. I expect good railroad earnings. Believing that conditions will continue to improve, the Reading Company will expend approximately $35,000,000 during 1929 for improvements. The largest sum to be spent is for electrification through the metropolitan district of Philadelphia. The directors of the Reading Company have appropriated $20,000,000 for this work. During 1929 the first expenditures will be made on this account. Work is to be started in the spring and in all probability along the Bethlehem branch.

During the year great strides will be made on the grade crossing eliminations through Manayunk. The North Broad street station will be completed and work will begin on the new Commercial Building at Broad and Callowhill streets.

In Philadelphia improvements will be made in the freight facilities along the water front, the most important of which will be the extension and changes to freight houses 1 and 3 at Front and Willow streets. In addition, coal yards will be constructed at 21st and Lippincott streets and at 49th street and the Chester branch.

The company will erect a bridge over the Susquehanna River at Muncy to cost $1,500,000. At Pottstown a passenger station is being erected, and bridges will be constructed at Charlotte street and at Washington street in that city.

At Reading a station will be erected at Franklin street and a bridge constructed over Fifth street. Another million dollars will be expended for a store house and other buildings at the Reading car shops.

—Blank & Stoller Photo.

Agnew T. Dice

More than $700,000 will be spent on the New York branch for the latest improved color light signals. In addition, the following improvements will be made at various points on the system: An interlocking plant at Pottsville Junction; pumping station at Beaver Creek; bridge at Wyomissing; bridge at Tuckerton, Pa.; improved facilities at Trenton Junction; increased parking facilities at Jenkintown; bridge at East Greenville, Pa.; color light signals will be placed at Shippensburg; improvements to station at Harrisburg; erection of coal yard facilities at Atlantic City and a new water supply at Abrams.

During the year grade crossings will be eliminated; Dekalb street, Bridgeport; Pottsgrove; Rupert, and Woodbridge, while from Emaus to Macungie, six additional grade crossings will be abolished.

This Line Is Well Maintained

By W. T. Noonan

President, B. R. & P. Ry. Co.

It has always been our practice to maintain this property in a high state of efficiency. During 1928 we laid 34 track miles with 100-pound rail; reballasted with stone ballast 75 miles of main track, and continued the improvement of roadbed by installing creosoted ties. Our drainage program has been quite extensive.

Our locomotive water facilities have been greatly improved by the addition of automatic electric pumps replacing steam pumping units, and the erection of standpipes and water tanks.

Timber coaling trestles have been replaced by mechanical type engine coalers and improvements made in the shops and shop methods.

Our grade crossing work has gone forward, not only by grade elimination but by the addition of electric flashlight signals at many highway crossings.

Our report for the calendar year will, I have every reason to believe, show a very satisfactory result.

We do not use any passenger buses although in limited territory and for l.c.l. freight we find the use of trucks advantageous.

Regarding airplanes: I believe that while we can build the foundation for future business, yet my thought is that the present generation is not sufficiently air-minded to make the venture profitable, although I have no doubt that future generations will use freely this method of transportation.

For 1929, which has every indication of being a year of very general prosperity, our company will continue its maintenance, and to enable us to expand with the traffic demands we expect we are giving very careful consideration to the location of a modern steel car repair shop which will have facilities for the economical maintenance of 10,000 steel cars. We are also in the market for 1,000 box cars and 25 heavy locomotives.

The Net At the Peak

By J. S. Hill

President, Nashville, Chattanooga & St. Louis

This railway is looking forward to next year with a moderate optimism. General conditions along the line are in satisfactory shape. Passenger business shows a constant decline and has not nearly reached the bottom.

No general wage increases for the coming year should be anticipated. Pressure continues for reduction in freight rate levels. Much improvement in operation has taken place within the last two or three years, but in general it has about reached its limit. Believing, therefore, that the gross revenue for next year ought to fairly approach those of 1928, it will be more difficult to maintain net revenues in the same proportion.

To Spend 60 Millions

By P. E. Crowley

President, New York Central

If we consider from a railroad point of view, the outlook for business for 1929, and review the occurrences of the past year, the indications would seem to point to a continuance of good business, if not to an increase in volume. The purchasing power of the country at large is becoming greater; standards of living are higher, and the liberal education, which travel affords, is becoming more and more appreciated by the people of the country.

The freight traffic of the railroads has been conducted in speedy and reliable fashion, and this will continue. Vast expenditures have been made to put the railroads in proper condition for doing their work economically and with expedition, and to keep

them so. As an example, during the past year the New York Central Lines have spent, in additions and betterments, exclusive of equipment, about 60 million dollars, and at least that much more will be spent during the coming year for the same character of work. Other roads are spending in the same ratio and undoubtedly will continue to do so, so far as they are financially able.

The ability to continue making large expenditures for improvements and to keep up the present high standard of service depends, of course, upon adequate revenues, and they, in turn, depend upon the maintenance of the proper rate structure. Should rates be reduced, both the gross and net revenues of the railroads would fall, necessitating retrenchment in various directions with a consequent curtailment of service. But I am hopeful that the present standards will be maintained and, therefore, look forward to the coming year with confidence.

Good Times in Sight He Says

By Frank H. Alfred

President and Genl. Mgr., Pere Marquette Ry.

For the coming year, the indications are promising in the territory that the Pere Marquette Railway serves. Some important developments and factory expansions are promised or under way in many of the principal industrial centers. La Porte, Ind., for instance, a small manufacturing city, has some big developments ahead; Wayne, Mich., is another; Walkerville, Ont., on the Pere Marquette lines, has important expansions of the General Motors Co. to its credit and the Chrysler Motor Corpn. is laying out over $2,000,000 in a new plant there for the Canadian and British dominions markets, and this, it is said, is only a beginning.

A certain manufacturing concern, one of the outstanding industries engaged in world trade, I understand, made a forecast recently for the use of its officers predicting good business for 1929 with a rise for 1930, the prediction being that it will be the outstanding one in the history of the corporation.

Commercial travelers in their rounds, both in the American and Canadian territory served by the Pere Marquette, report a spirit of confidence and optimism among the small business men, the like of which they have not sensed during the last five or six years.

While a number of the larger railroads have announced some important outlays on their properties for the next few years, the Pere Marquette Railway's program for 1929 has no larger improvements or additions except in contemplation. The construction of two new lake car ferries for Lake Michigan, and about the same amount of rail laying as was done in 1928, and a slightly greater item in the budget for ballasting. We laid about 83 miles of 110-pound rail in 1928 on the various divisions and about 72 miles of ballasting. We do not contemplate the purchase of any new power or equipment at this time.

The two new car ferries will cost $2,500,000. They will have a speed of 18 miles an hour and will be of the turbo-electric type. The contract has been awarded to the Manitowoc Shipbuilding Co. at Manitowoc, Wis. The first will go into service between the ports of Ludington, Mich., and Milwaukee, Manitowoc, Kewaunee, Wis., about October 1; the second two months later. The new car ferries will be perhaps the most up-to-date in design and equipment of any steamers used in such service.

The growing use of the airplane in the carrying of passengers does not enter largely in the Michigan field as a passenger adjunct inasmuch as the territory covered is comparatively short, the longest haul being practically about a 12-hour one. So, it is only remotely possible that such a project will ever receive more than passing consideration by railroad management here. However, the railroads in this territory are not fighting their development; rather they are fostering the expansion of the industry. Only a few days ago, I signed a contract for an industrial switch to a new airplane factory to be located on our lines. We expect some tonnage from this new industry. I am informed that the manufacturers of this plane prefer to ship their finished products by train, rather than taking the hazards of damage on the first trips that might result from sending them out "under their own steam."

Here's a New Passenger Station

By Carl R. Gray

President, Union Pacific System

The capital expenditure program of the Union Pacific for 1929 will be about the same as for this year.

One of the interesting items that will be completed shortly after the first of the year is a new passenger station at East Los Angeles, which is now under construction at the intersection of Atlantic boulevard and Telegraph road, six miles from the Central Station in Los Angeles. Motor coaches on the highway will ply from Glendale, Pasadena, Long Beach and Anaheim to and from this new station in substitution for steam passenger service on the present branches. Likewise, this new station, being outside of the congested area, will be readily accessible to private automobiles, and it will serve the public with a distinctly intimate opportunity to meet incoming friends or to see them off on a long eastern

journey. A more complete description of this is given on page 11 of the Union Pacific Magazine for December, 1928.

The territory served by the Union Pacific has profited by good crops throughout, and accordingly rail business has been holding up well, and we expect it to continue so until all of the new crop has been moved to market.

Passenger traffic, particularly local, is still showing a decrease on account of the continued extensive use of automobiles.

The Union Pacific has just completed the handling of the 10,000th consecutive on-time fruit block from the Pacific Coast. That is to say, none of the last 10,000 fruit trains handled have arrived at Omaha late. I believe this is a unique record in railroading.

I look for a continuation of prosperity next year without any unusual changes.

Fine Program of the C. P. R. in 1929

By Grant Hall

Vice President, Canadian Pacific Ry.

We are now at the end of quite a prosperous year. This country is young and is enjoying steady development in grain production, diversified farming and industry. It was blessed this year with the largest wheat crop in its history, about 550 million bushels representing an increase of 100 million bushels in round figures over 1927. Accordingly our railway has been taxed to capacity in transporting its major proportion from interior elevators to the head of the Great Lakes at Fort William from where it is carried by water to eastern lake ports, and thence by rail to ocean ports for the markets of the world.

With a greater quantity of grain moved and with an increase in general traffic of from 10 to 12 per cent over last year, this company has been able to produce a favorable comparative balance sheet. In fact, net earnings for the ten months in October were $41,231,000, an increase of $9,765,000 over the same period for 1927.

With national development and consequently greater traffic density over more widely distributed areas, the railway is confronted with the necessity of advancing to meet the situation, and this calls for large expenditures for new mileage, higher maintenance standards, and more rolling stock. Accordingly, from year to year, we are building new lines, replacing rails with heavier section, rock ballasting track, replacing and strengthening bridges, building heavier power, and bringing our passenger and freight cars up to the modern standards. A memorandum of new trackage added durthe few years shows our growth:

1921— 41.91 Miles.
1922— 95.61 Miles.
1923— 86.54 Miles.
1924—405.14 Miles.
1925—103.35 Miles.
1926—130.73 Miles.
1927—186.33 Miles.
1928—235.05 Miles.

E. W. Beatty,
Chairman and President,
Canadian Pacific Ry.

In 1921 we first began using 100-lb. steel in place of 85-lb. section in our main tracks. Up to the present 3,676 miles of this work has been accomplished, and of the total about 800 miles has been prosecuted during 1928. At about the same time we also began to install rock ballast, and to date a total of 1700 miles of this work has been completed.

The work of replacing and strengthening bridges to take care of heavier power, begun in 1924 when 1619 feet of bridge work was taken care of, has continued. Since then a total of 21,939 feet, equal to 4.15 miles, of bridge work has been replaced, this representing either the replacement or strengthening of 134 bridges. In 1928, 45 bridges were involved, representing 10,058 feet. At present our program on track work for 1929 has not been definitely decided upon, but decision has been reached that the following rolling stock be constructed during the coming year:

Special Cars for De Luxe Trains

15 Lounge observation
29 Eight section sleepers; 2 compartments, 1 drawing room.
15 Dining cars
10 Special baggage

Other Passenger Cars

15 First class coaches
11 Buffet parlor cars
2 Cafe parlor cars

2 Single bed compartment cars
11 Combination mail and express cars
6 Standard baggage cars

Freight Cars

2500 All steel box cars
50 Express refrigerators
250 Freight refrigerators
300 Coal cars
200 Automobile cars
300 Flat cars
200 Stone cars
6 All steel ore cars
5 Depressed centre flat cars

In addition to this, consideration is being given to the building of a number of locomotives having a tractive effort of 80,000 lbs. These will be used in British Columbia mountain territory to economize in freight haulage where the line is mostly single track and taxed to capacity at peak seasons. I said a moment ago that most of the grain finds its outlet through the Great Lakes, but in recent years increasing quantities of grain and other products are being routed to Vancouver, which port is enjoying a large development through increased traffic to and from the Orient and via the Panama Canal to Europe.

As to passenger buses and trucks, we have hardly yet begun to use them. We are operating only three buses in Ontario in conjunction with rail service. Traffic density does not yet call for this service. Winter conditions we have with us militate against their successful operation for a considerable part of the year.

The development of the airplane we are watching with extreme interest. The time doubtless will come when it will take a large part in transportation but we have not reached the stage where we contemplate its use in conjunction with the railway in the near future.

In addition to its many other interests, apart from our rail operation, the company maintains and operates a chain of hotels across the continent. The latest addition to this chain is the "Royal York" Hotel at Toronto now under construction, immediately opposite the new Union Station. When completed it will be 26 stories from main floor to roof, or approximately 400 feet in height, making it the tallest building in the British Empire. It will contain over 1000 bedrooms with baths, and ample public space, such as convention hall, banquet hall, ball room, main dining room, private dining rooms, cafes, and roof garden overlooking Lake Ontario. Its equipment and furnishings will be of the most modern type, and its elevator equipment will be the very latest development. For the convenience of passengers arriving at the Union Station, a passenger subway is being constructed from the lower concourse of the station to the hotel under Front street, permitting patrons to reach the hotel without having to cross the street.

In 1922 the first post-war vessels were added to the Canadian Pacific fleet, "Montrose", "Montclare" and "Montcalm" on the Atlantic and "Empress of Canada" on the Pacific. Five super-cargo boats of 15 knots speed and of the very latest design for the carrying of perishable and package freight were laid down in 1926, coming into service in 1928. This summer two super-cabin ships, the "Duchess of Bedford" and "Duchess of Atholl", were delivered, and this winter two sister ships, the "Duchess of Richmond" and "Duchess of York" will come into service. These vessels are 20,000 tons gross register, with sea speed of 18 to 18½ knots. These are the largest vessels using the port of Montreal.

Since the war the company will have built for its fleet, with delivery of the last two "Duchesses" this winter, 13 ships aggregating 200,962 tons. In addition, there were purchased during the same period four passenger vessels already built aggregating 74,024 tons, making the total tonnage acquired by building or purchase since the war, 274,986 tons. There is also under construction for delivery in 1930, a first class passenger vessel for the Pacific service of 25,000 tons, speed 21 knots exceeding both in size and speed anything at present in service on the Pacific or projected.

The last contract which has just recently been let is for a magnificent vessel for the St. Lawrence trade, terminating at Quebec. This vessel, which will be 40,000 tons gross register with a speed of 24 knots an hour will be capable of making the trip between Southampton and Quebec in five days. While not so large or so fast as the projected monster ships on the New York run, she will represent a far greater advance over any ship hitherto in the St. Lawrence trade than the new vessels for the New York trade represent over the vessels presently in that service. The company's fleet transatlantic and transpacific, including vessels actually under construction, aggregates 465,367 tons.

Moderate Freight Increase for 1929

By Paul Shoup

President, Southern Pacific Co.

Although the record of Southern Pacific business for 1928 has both favorable and unfavorable detail, conditions in the territory served by its lines indicates a moderate increase in freight business during 1929.

There has been a steady growth in the movement of perishable products from the Pacific Coast states to the East and further increases are in prospect, particularly in fresh vegetables, cantaloupes, melons and fruits. The citrus fruit crop promises to equal or exceed any previous year.

During 1928 industrial conditions generally showed improvement and a number of new industries located in territory served by our lines. Lumber shipments are still below normal but shipments are showing small gains. The mining industry also shows signs of revival.

We are constantly increasing the size, quantity and efficiency of our equipment to meet the increasing demand for thorough, dependable and rapid transit. It has been necessary to increase investment in refrigerators and ice-making plants to the extent

of many millions of dollars to meet the growing eastward movement of perishable freight.

During the past year the company completed standard gauging the 155 mile Nevada-California-Oregon Railway which extends from Wendel, on our Fernley branch, through Alturas in Modoc County, Cal., to Lakeview, Oregon. This line will not only open to greater development large areas of valley farm lands and extensive forests in northern California but will be also an important link in a new cross state line to be formed upon the completion of 95 miles of new line now under construction between Klamath Falls and Alturas. The new cross state line will give western and southern Oregon and northern California another outlet to the East 211 miles shorter than the present route through Roseville, Cal., and avoids the heavy grades over the Sierra Nevada Mountains. The line will serve agricultural territory in Klamath Basin, and bring rail transportation to one of the largest stands of virgin yellow pine timber in the United States.

The increasing use of the automobile and truck continues to accelerate changes in passenger and freight transportation and gives the railroads problems of increasing magnitude. Mileage of automobiles used over the good highways for individual and family use continues to grow and has its effect on the passenger business whose revenues are constantly decreasing. Motor bus companies are increasing their use of the same highways without any capital investments therein. Their taxes, direct or indirect, are very small compared with taxes paid by the railroads with which they compete. The airplane is a potential competitor for passenger traffic but it has not yet developed so that its competitive effect can be measured in our railway revenues.

Paul Shoup
New President, Southern Pacific Co.

Truck and water competition have been responsible for the comparatively small growth of freight traffic handled by the railroads since the World War. The growth in territory along Southern Pacific lines has increased traffic, but the competitive effect of motor trucks on local traffic and the effect of the Panama Canal on the transcontinental rail traffic continues. Coastwise and intercoastal steamship lines also have the advantage of no investment in roadway. The problem of securing westbound tonnage to balance movement of eastbound commodities, especially perishables, has not been satisfactorily solved.

In addition to the competitive factors mentioned the railroads have had to face a large increase in payrolls due to higher wages granted under mediation and arbitration proceedings placed in effect by federal law. This increase has influenced net earnings accordingly.

The prosperity of the company is responsive to the prosperity of the territory it serves, and forecast indicates that 1929 has a generally cheerful outlook. Large production of one or two crops may result in some marketing problems, but it appears that the products of the Pacific Coast will meet with as good markets and as good or better prices than prevailed in 1928.

Prosperity on the Rock Island

By J. E. Gorman

President, Rock Island Lines

The Rock Island is enjoying its most prosperous year, and the business outlook for the future indicates that, with good crops, this prosperity should continue indefinitely. The territory we serve has been blessed with good crops; farmers and rural communities are prosperous, and a general feeling of contentment prevails. So we look forward to the new year with every anticipation of continued good business, not only for the railroad but for all the people in our territory.

During 1928 the Rock Island expended $18,000,000, most of which went toward improvements to its roadway facilities. In addition, it has completed 90 miles of branch line in the Texas Panhandle country, and will build 60 additional miles during 1929. We also hope to secure approval of the Interstate Commerce Commission to our application to build a low grade line from Trenton to Kansas City, a distance of approximately 100 miles, which, if constructed, will be the lowest grade line and heaviest piece of construction work ever built in the midwestern territory.

James E. Gorman
President, Rock Island Lines.

The Rock Island does not use trucks or passenger buses but we are expending approximately three-quarters of a million dollars annually in purchasing heavy duty rail motor cars to replace steam local trains on both our main and branch lines.

We are watching the development of airplanes for passenger travel very closely, but have no program for coordinated rail and airplane service, pending determination of public attitude on air travel before taking action.

We have a very heavy program for improvements in 1929, which however has not yet been approved, most of which will be toward reducing transportation expenses. The general condition of the Rock Island Lines at the close of the year, I am glad to say, is the best in its history.

Real Progress Made in 1929

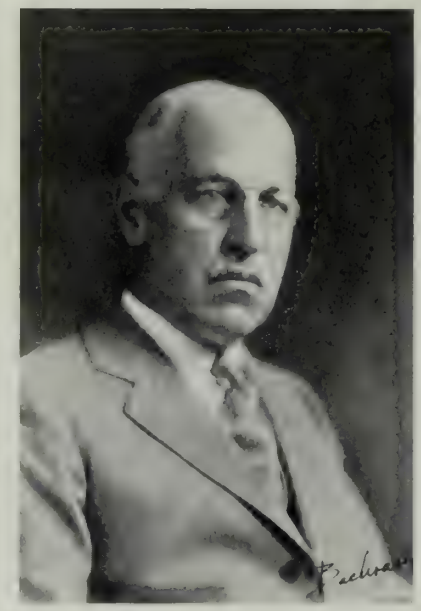
By W. W. Atterbury

President, Pennsylvania Railroad

During the past year the American railroads have made real progress. That progress consists not merely of improvement in railroad operation itself, but in a realization of the importance of coordinating rail, highway and air transportation to the end that the public shall realize the best available service with the minimum of unnecessary over-lapping.

The railroads have also felt they have now become sufficiently secure, and the support of the public generally is so manifested through regulating authority, that projects of expansion and development could be entered upon with more than ordinary confidence.

Our own company announced recently a comprehensive electrification plan covering the territory between New York and Wilmington. It is expected that during 1929 the rail and air service across the continent will be established. Progress is being made in coordinating bus, truck and container car service.



Gen. W. W. Atterbury

More careful and extensive research than ever is going on concerning the future problems of steel rail construction, road maintenance, the design of motive power and equipment generally, as well as the best methods of arranging terminals, yards, etc., and in developing improved operation and economy.

The New Year promises to be prosperous. Railroad progress will go forward with that prosperity and, as far as possible, ahead of it. The most gratifying characteristic of the situation at the end of the year is the loyal attitude of the working organization and the intelligent support of public opinion.

Lehigh Valley Certainly Is Busy

By E. E. Loomis

President, Lehigh Valley R. R.

On what we may call the human rather than the statistical side of transportation, the Lehigh Valley opened for service, November 26 last, a new tunnel 63 miles west of New York near Pattenburg, N. J. It is 4895 feet long and has an inside width of 30 feet, and the top is 25 feet above the rail. Growth in the size of locomotives and cars made it necessary for the Lehigh Valley to reduce an old tunnel at this point to a single track operation so that the heavier engines would have sufficient clearance for passage. The new tunnel provides for double track operation with ample clearance for the largest equipment. The Lehigh Valley now has a three-track operation through this busy part of its territory.

At Oak Island, just east of Newark, N. J., the Lehigh Valley is rebuilding its freight yards. Included in this work is the construction of a new enginehouse and the installation of a modern car retarding system. In this connection, a coaling plant, a freight transfer station with a platform nearly 1000 feet in length and an office building already have been completed.

In conjunction with the Pennsylvania Railroad we are building a new double track lift bridge across Newark Bay between Bayonne and Newark, N. J. This bridge will be 3944 feet long with a clearance of 35 feet above high water. The bridge proper will consist of 28 fixed deck girder spans each 110 feet six inches long and two through truss fixed spans each of 260 feet in length. A channel will be dredged through the longer spans. The lift portion of the bridge is with a horizontal opening of 300 feet and a vertical clearance of 135 feet above high water.

In the early part of October, 1928, ground was broken by the Lehigh Valley for a 12-story fireproof ware-

house at 144th street and Gerard avenue, the Bronx, New York City, immediately adjacent to its terminal and yards at 149th street, and Harlem River. It will be 227 feet long and 147 feet wide and will provide a total storage space of 348,617 sq. ft. While the building will be so constructed as to permit the convenient storing of automobiles—as many as 230 to the floor—sections will be set aside for general storage purposes. Tracks into the warehouse will connect it with the adjacent terminal, thereby eliminating extra handling and trucking of freight which the shipper desires to go into storage.

We are contemplating erecting a modern coal terminal in Jersey City, immediately adjacent to our Grand street freight station. The structure will be 1105 feet long and will be constructed of re-inforced concrete. There will be 20 bins each with a capacity of 200 tons, making a total capacity of the pockets of 4000 tons and a ground storage of 3000 tons under the approach trestle.

The Lehigh Valley has arranged to install remote traffic control systems at several points on its Wyoming and New Jersey and Lehigh divisions.

We have recently made inquiry from builders as to prices on 300 new automobile cars, 500 coal cars and 200 mill-type gondola cars. We have also made inquiry as to prices covering the construction of two additional gas-electric passenger cars.

E. E. Loomis

If the railroads are left reasonably free from the attentions of the lawmakers, and the Interstate Commerce Commission has a free hand in its endeavor to insure the railroads the fair return provided by law, 1929 should prove a year of satisfactory results.

So far as the Lehigh Valley is concerned, there is every reason for optimism. The thorough way in which the property has been maintained for many years is now bearing fruit and we were able to show material reductions in expenses in 1928 without reducing our standards or interfering with the high character of freight and passenger service we have offered the public. At the same time, we have gone ahead with a large program of improvements which should make our service even better, while reducing our operating costs.

The railroad companies as a whole have never earned the fair return upon their investment the Transportation Act promised them, yet they face a continued loss of revenue through constant whittling away of their revenues as a result of the steady pressure for rate reductions upon the Interstate Commerce Commission by shipping interests as well as by competition among the carriers themselves for temporarily increased tonnages.

If our national rail system is to meet the demands of our commerce, it must have adequate revenues that it may obtain necessary capital at reasonable rates to keep its plant modern in every respect. Our prosperity is "pegged" upon fast and dependable transportation. The kind of transportation the country will get in the future will depend largely upon the condition of the railroads and that will depend mainly on the treatment accorded them.

Railroad Prospects Seem Good

By Wm. H. Williams

Chm., Mo. Pac. and Wabash

I BELIEVE that fundamental conditions are good. The aggregate crop values for 1928 are approximately the same as for the year 1927, so there will be no change in the purchasing power of the farmers. Automobile manufacturers are expecting to produce 20 to 25 per cent more automobiles and trucks during the current year, and the resultant increased steel orders will cause increased production of ore and fuel.

Railroad traffic during the first half of 1929 should at least equal that of the corresponding period of 1928, after which time the volume of traffic will be dependent upon the crops of the year 1929. There is every indication the prosperity of the Southwest will continue, unless there are heavy crop reductions. We are assuming there will be no financial disturbance which will adversely affect confidence.

Good Business Keyed to Hold

By R. B. White

President, Central Railroad of New Jersey

ONE cannot fail to be impressed by the indomitable spirit of energy and enterprise prevailing among business men, and ramifying all branches of commerce, industry and finance which is an omen of future progress and prosperity; and to form any other than an optimistic opinion as to the outlook for the coming year would be to display a lack of faith in American institutions.

Reports from the country at large point to an advancing level of business turnover, while the situation in territory served by this company is that large industrial concerns are finishing the last quarter of 1928 with increased activity, and are keyed for

continued favorable business for the balance of the winter, with prospects encouraging for the first half of 1929.

The railroads will continue to render the character of service which will command the confidence and approval of the public if their credit can be maintained—and to do this it will be necessary to accord them fair rates for service performed; to lighten the increasing tax burden; to eliminate unnecessary legislation, and curtail the compulsory expenditures imposed upon them for nonproductive improvements.

Net Gains and Gross Declines

By J. J. Bernet

President, Erie Railroad

ALTHOUGH the gross revenues of the railroads declined more than $100,000,000 during 1928, the net railway operating income for the first three-quarters of the year, for which figures now are available, showed an increase.

This fact demonstrates in an outstanding fashion the capacity of American railway management to apply more efficient and economical methods of operation, not only without deteriorating the quality of service, but actually in many cases improving it.

On the Erie road, specifically, we have had a very gratifying gross revenue, and our net, through the operating economies and other economies made effective, shows a very agreeable result. With the addition of new motive power and equipment these results should show more strikingly during 1929 than they did during the year just ended.

Emphasizing Better Public Relations

By E. H. Maggard

President, Northwestern Pac. R. R.

I SHOULD like to accentuate the human element phases of our program. When, in February, this year, the new management took control of the road's affairs, a program of public and employe relations was established that has proved eminently successful. "Service With a Smile" was adopted as the slogan for the entire organization. The employes were urged and trained to render a new standard of service in which courtesy was the keynote. Suggestions for changes and improvement in the service were invited from both patrons and employes, and, wherever desirable and practicable, were adopted. In every case receipt of the suggestion was acknowledged and the maker was told that it was adopted or the reason why it was not adopted.

A public contact leaflet, All Aboard, is being distributed on a given day monthly, to every passenger and is also distributed to shippers, public officials and chambers of commerce directors.

Close contact has been made with the newspapers; they have been kept fully informed of all matters of public interest. A mimeographed publication, The Rail-O-Gram, is supplied editors weekly, keeping them informed of matters of current interest.

Upon taking control of the property, the new management realized that the most urgent matter confronting it was the creating of better public relations. As public relations are greatly influenced by the existing relations between the employe and the management, the first undertaking was the humanizing of the relations between management and workers. This has been attended with a success far beyond expectations.

Employe relations have been improved through closer contact with the management. One feature has been the attaching of a direct message to each semi-monthly pay check. The employe house organ has been personalized and other contacts have been established.

As to physical improvements: During 1928 work was undertaken on the construction of new depot buildings at Ukiah, Healdsburg, San Rafael, Ross, Mill Valley, and shelters at Kentfield and Almonte. Work was also started on the improvement of the power distribution in the suburban zone.

Two new sub-station buildings with equipment, and new and additional equipment for two present stations have been ordered and will be installed early in 1929.

Fifteen miles of track laid with 75-lb. steel is being relaid with 90-lb. steel, and roadbed and track conditions throughout the entire system have been much improved.

Ten cars of the very latest type have been purchased for use in the interurban zone, five of which are motor cars and five trailers. This equipment will have push button electro-pneumatically operated gates interlocked with the control mechanism so that they can be opened only when train is at a standstill, and the train can be started only after all gates have been closed. These cars are roller-bearing-equipped, and, wherever possible, aluminum has been used in their construction with a saving of between 5000 and 6000 lbs. each. The very latest improvements in lighting, heating and ventilation will feature this equipment. Steps and platforms are to have non-slip treads.

Work has been undertaken upon the construction of a new back shop at Tiburon and upon the construction of new shop buildings at Eureka.

During the coming year the Northwestern Pacific plans a continuation of its improvement program so that its patrons may have the best service possible. Stations now under way will be completed and, in addition, station grounds will be improved.

Further improvements are to be made in shop facilities, including a new enginehouse and turn table at Tiburon, and the general improvement of the Sausalito shop yards. The Sausalito terminal yard is also to be much improved and track layouts at other locations improved and extended.

Railroads Are Human Things

By A. C. Needles

President, Norfolk & Western Ry.

THE YEAR which is ending has been an average one for the Norfolk & Western Railway, neither exceedingly good nor exceedingly bad. Our volume of traffic has been about the same as it was in 1927; our earnings have remained approximately the same; an average amount of improvements and betterments has been made, and the physical property has been maintained to our usual standards.

Owing to the fact that our survey of industrial and agricultural conditions in the territory served by the railroad and its connections indicates that 1929 probably will be another average year insofar as our traffic is concerned, we do not expect to alter greatly our plan of operation or change our constant effort to develop our property and the territory it serves.

Insofar as competitive forms of transportation—the motor truck, bus and the airplane—are concerned, we are keeping closely in touch with developments even though we do not feel that the time has come when these agencies are practicable in much of the territory served by this line.

Your effort to "emphasize the human interest side of transportation" is as clear a statement of the outstanding development on the Norfolk & Western in the past year as any that could be made. We have devoted our time and efforts toward the operation of existing facilities more economically and more efficiently rather than to experiment in new fields. We have tried to provide mediums for the expression of the loyalty of our employes; help toward their efforts to work more efficiently; proof that a railroad, in the final analysis, is a human thing, not an assembly of inanimate machines. Judging from the satisfactory results we have obtained in the form of morale, efficiency, elimination of waste, safety, etc., we have made progress.

—P & A Photo.

No Wonder President Needles of the Norfolk & Western Writes About Human Relations. Just married! Edith Hortense Clark, Now Mrs. Needles, Is Shown With Him At Atlantic City.

Better Year for the Milwaukee

By H. A. Scandrett

President, C. M. St. P. & P.

Conditions in that section of the country served by the Chicago, Milwaukee, St. Paul & Pacific R. R. Co., between the Great Lakes and the North Pacific Coast, have been improving in recent years, and in the last two years particularly agricultural conditions have been considerably better.

As agriculture takes so large a part in the business affairs of this territory, the effect of more favorable farm returns has been felt in all lines of business. There has been freer buying of farm machinery and improvement of other farm facilities, and the effect of this betterment of the agricultural situation doubtless will be felt along into 1929.

The Milwaukee has had an improved year as a whole. Its increases in freight revenues have more than made up for the large falling off in passenger earnings, compared with 1927, and, so far as we can see, in the early months of 1929 freight business will be of substantially as large volume as in the corresponding months of this year; a longer forecast is not possible because so much depends on the crop situation next year.

This railroad has added to its equipment this year 4,652 new freight cars, 20 passenger train cars, and 15 gas-electric motors as part of its improvement program. In addition, about $7,500,000 was authorized for additions and betterments covering new yards, signal installation, track elevation, shop buildings, and tools,

coaling plants, water treating plants, etc.; about $4,000,000 for bridges, trestles and culverts, additional yard, siding and industrial tracks, crossing improvements, widening cuts and fills, filling trestles, etc., and about $5,850,000 for new rail and other track material.

Appropriations for capital expenditures in 1929 are not yet in definite form as this is written, but they will include the usual authorizations for additions and betterments, such as those mentioned, as extensive expenditures are required every year to maintain the property in first class condition and in position to meet traffic demands.

The Milwaukee road is not operating truck lines or bus lines on highways, but has in use a number of gas-electric motors in branch line service.

This railroad joined some of its northern neighbors last summer in effecting arrangements with the Northwest Airways Co. whereby travelers could use the planes of that company between Chicago and the Twin Cities, using the railroads west of the Twin Cities.

As Usual, the Lackawanna Improves

By J. M. Davis

President, D. L. & W. R. R.

Up to the present we have not gone into the operation of freight trucks or feeder bus lines, and it is not now contemplated that we shall do so during the coming year.

The use of the airplane seems destined to grow, especially in connection with long distance traffic where tremendous speed is the dominating factor. I do not look for their use to affect our earnings noticeably during the coming twelve months. Obviously, we have given some consideration to the desirability of establishing coordinated rail-plane service, but to date have not agreed upon any definite plan.

Outstanding among physical improvements on the Lackawanna during 1928, were the opening up of the bottle-neck between Denville and Dover, N. J., through which moves all freight and passenger traffic to and from the New York-Passaic-Paterson and the New York-Newark lines, by the addition of two tracks, which has transformed this neck into a four-track line and speeded up the freight and passenger traffic.

The completion of a three-track lift bridge, which is one of the heaviest bridges per lineal foot in the world, over the Hackensack River, between Hoboken and Newark, which has noticeably speeded up the movement of trains in that busy, industrial zone.

The completion of the elimination of all grade crossing work in Passaic and Paterson, N. J., including the realignment of track and the construction of a new passenger station at the latter point.

The extension and completion of automatic train control from Buffalo, N. Y. to Scranton, Pa., including the installation of this equipment on some 200 locomotives.

The traffic department opened new offices at both Los Angeles and Portland, Ore., during the year.

Of more than ordinary importance, on the program for 1929 may be mentioned:

The receipt of twenty 4-8-4 Pocono type fast freight engines for main line service. Having both greatly increased tractive power and fuel-carrying capacity, these engines are designed to haul heavy freight trains at materially increased speeds and with fewer operating stops.

The completion in Jersey City-Hoboken of the largest dry storage warehouse, devoted exclusively to general storage and distribution purposes, under one roof on the Atlantic seaboard, the first of its kind on the Jersey shore.

The continuation of the work of electrifying 78 miles of road or 173 miles of track, embracing the lines from Hoboken to Montclair, Gladstone and Dover, in our Northern New Jersey suburban zone, which work should be completed early in 1930.

The continuation of the elimination of grade crossings in New Jersey, Pennsylvania and New York, on which work the Lackawanna already has expended more than $29,000,000.

As you well know, the Lackawanna long has been one of the most highly developed of all our railroad properties. Never in the history of the Delaware, Lackawanna & Western has the physical condition of the road been so good as it is today.

For Increased Operating Efficiency

By C. Haile

President, Missouri-Kansas-Texas Lines

The Missouri-Kansas-Texas Lines in 1929 will continue recent improvement policies. Our improvement budget for the year contemplates a total expenditure of $6,453,921; the major projects to be undertaken all being directly related to the five-year improvement program adopted a year ago. We do not contemplate large expenditure for new equipment, it begin the present policy to devote improvement expenditures largely to purposes that will produce increased operating efficiency, rather than enlarged transportation capacity.

The improvement policy pursued by the M-K-T for several years past has so equipped the railroad that it is able to handle a considerably larger volume of traffic than it is now enjoying, and, for the present, expenditures that will result in increased operating economy seem to offer the best prospect of productive results.

A Fine Example of the Old Spanish Mission Architecture Is Found in the San Antonio Station of the Missouri-Kansas-Texas Lines.

Expenditures in 1929 will be largely for improvement of roadway and structures, it being our purpose to expend more than $2,000,000 for rail-laying and ballasting, and approximately $700,000 for bridges, trestles, and improvements at grade crossings. We will also expend about $500,000 in revision of line and grade, and about $250,000 for bank widening, drainage and flood protection. We will also expend approximately $175,000 in completion of our new enginehouse and locomotive facilities at Smithville, Texas, and will build a new 10-stall enginehouse, with accompanying mechanical facilities, at Ft. Worth, Texas, which will involve an expenditure of approximately $400,000.

While traffic forecasts for the ensuing year necessarily are speculative at this season, because of the important influence of agricultural production on our traffic volume, survey of the general situation in the Southwest at this time reveals nothing indicating a reversal of present traffic trends. Assuming normal agricultural production in 1929, it seems safe now to anticipate a traffic volume at least equal, and probably exceeding that enjoyed in 1928. Present prospects indicate that our traffic in the earlier months of the year will be slightly heavier than in 1928, business conditions in the Southwest being generally encouraging.

The M-K-T does not at this time contemplate entering the field of operating freight trucks and passenger buses, nor are we taking steps toward establishing coordinated rail and airplane service. While I expect continued development of travel by air, it now seems to me that air travel agencies will occupy a distinctive field not highly competitive with the railways, and that there is not at this time probability that airplanes will cut seriously into railroad revenues.

Canadian Motor Output Up

Production of motor cars in Canada for the first ten months of 1928 totaled 221,188 cars valued at $139,909,876, compared with 169,331 cars valued at $110,736,126 produced in the corresponding period in 1927, an increase of 51,857, or 31 per cent, in number and of $29,173,750, or 26 per cent, in value.

Are Buses Driving Out Street Cars?

In many of the smaller municipalities of the country the motor bus is gradually replacing the street car as a means of city transportation. Recently, Marion, Ohio, and Keokuk, Ia., have seen their street car service replaced by the motor bus. An immediate result of this change is the removal of the street car tracks and the unsightly trolley poles that carried the power wires for the street cars.

In recent years heavier steel rails have come into more general use to meet the requirements of heavier traffic. Rails of 100 pounds per yard and over used in 1927 equalled two-thirds of the year's production of all rails.

The freight rates of the United States are remarkably low in comparison with the freight rates of other countries. Only through increased efficiency and the installation of cost-reduction facilities has it been possible for the railroads to give freight service by means of freight cars and at the same time to meet their vast expenses at such low rates.

Direct purchases by railroads of fuel, materials and supplies in 1927 aggregated $1,395,928,000. This expenditure represents only those items directly bought and paid for by the railroad companies. The railroads, in addition thereto, purchased indirectly large quantities of many commodities which were used in the manufacture of railroad equipment, not classified under the head of direct purchases.

Copyright, Kaufman & Fabry.

The International Aeronautical Exposition in the Coliseum, Chicago, in December. Eighty-One Planes Were Shown.

A Big Year Coming in Aviation

The Patrician's Builder Optimistic

By Edgar N. Gott

President, Keystone Aircraft Corpn.

At the Keystone Aircraft Corpn. plants, we are completing the best year in our history, and at the same time are looking forward to a new year of extreme activity for the industry. During the year, we have produced a large number of military planes for both the Army and the Navy, as well as training planes for some of our sister nations in South America.

In the commercial field this organization designed and produced the 20-passenger monoplane transport, the Patrician, which is the latest development in large transport planes, and represents a considerable step forward in the transportation of a large number of passengers over long distances. We already have several orders for ships of this type for delivery early in 1929. The enthusiasm with which the Patrician has been received indicates that there will be at least 20 ships of this type in service before the end of the year.

We have also acquired the Loening Aeronautical Engineering Corp. one of the oldest established companies in the aircraft business, and have added their well known line of amphibians and their experienced personnel to our own organization.

We believe that 1929 will see a great increase in commercial aviation activities and the acceptance of air transportation as an important division of the entire transportation system of this country.

Airplanes On Easy Payments

By John C. Nulsen

Vice President & General Manager, Mahoney-Ryan Aircraft Corpn.

Aircraft manufacturers have just completed the first season of the aircraft rennaissance, and it has been one of enthusiasm and improvement. Aviation has claimed

Edgar N. Gott

the attention of capital, and modern business methods have stepped into aircraft factories, resulting in unprecedented production and efficiency.

This has not come about overnight, but nevertheless quick work was imperative to satisfy the flood of orders greeting manufacturers in the early months of 1928. Careful design and analysis, simplification, and the use of jigs to insure absolutely interchangeable parts were effected under the distracting clamor of customers eager for ships. Naturally there were certain inefficiencies, and factories of the West Coast were often held up awaiting shipment of parts, motors and materials from East Coast factories. Then, not infrequently, the customer would fly the ship right back to where a great part of it had originated.

Our directors, in choosing St. Louis for the new location of the Mahoney-Ryan factory, have not only honored us in close association with the city whose name is so closely coupled with one of our ships, but have chosen a location adapted to convenience of raw materials and ease of distribution. Spruce from Oregon and motors from New Jersey go into planes for Minneapolis and New Orleans now with a maximum of economy.

With the growth of the industry to meet the demands placed upon it, has come an intense selling competition. A system of distributors and dealers based on the automobile plan has been formed and flying salesmen are organizing air lines and flying schools in all corners of the country. Aviation insurance and installment selling of airplanes are now realities. A new form of advertising has been born. Continual research in developing new and safer forms of flying, and next year will find aviation prepared to do a greater volume of business than ever.

Larger Planes Are Coming

By E. A. Stinson

President Stinson Aircraft Corpn.

The Stinson Aircraft Corpn. built and licensed slightly over 100 planes during 1928. The continued success of the Stinson-Detroiter six passenger cabin monoplane, which won the

John C. Nulsen

Ford Reliability Air Tour in 1927, was still further enhanced by its excellent showing in the National Reliability Tour of 1928. A smaller edition of the Stinson-Detroiter, the Stinson Junior, was announced at the All-American Aircraft Show at Detroit early in April. This ship was entered in the National Reliability Air Tour of 1928, and finished far ahead of every single-engined cabin monoplane in that tour. Since the construction of the first Junior, 40 have been built and delivered to purchasers.

Due to the demand for increased floor space, a new factory is being erected at Wayne, Mich. Adjacent to the factory is a flying field of 360 acres which will greatly facilitate the final assembling and testing of Stinson planes. Plans for 1929 call for the producing of 500 planes. At the Chicago Aeronautical Exhibition, a new tri-motored transport was announced. This ship is designed to carry 14 passengers including pilots.

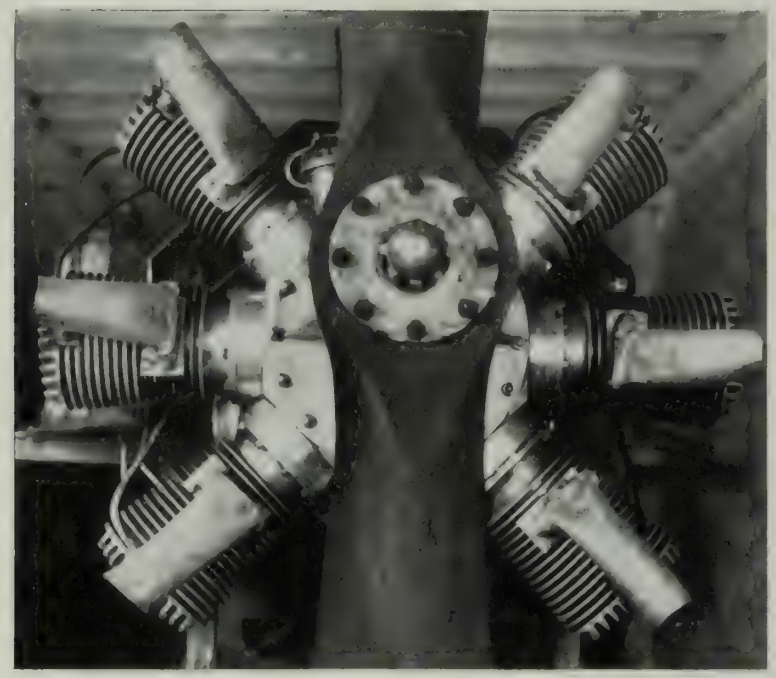
With the recent announcement of the proposed Transcontinental Air Transport route across the United States combining air with rail travel, a full realization of the value of air travel has been approved. The airplane, as it is now being built, cannot hope to supersede rail travel. However, by proper cooperation, it will provide a safe, speedy, and comfortable means of travel. Recent announcements of huge multi-motored transport planes capable of carrying between 25 and 50 passengers with accomodations for berths, kitchens, and full lighting equipment indicate what may be expected in the near future. However, until that time when the feasibility of using such huge planes has been definitely demonstrated the combined air and rail means of transportation is the only solution to the demands of modern business for a close linking of eastern and western sections of this country.

New Air Mail Record Made

The American Air Transport Association announced a new record made in a Boeing air transport mail plane which arrived at Chicago, December 26, with 1700 pounds of mail from San Francisco, 16 hours and 56 minutes after the start from the Pacific Coast. The best previous record was 17 hours and 22 minutes, made on Friday, January 13, 1928.

The four planes that brought the mail in relays actually were in the

E. A. Stinson



Eight-Cylinder, Two-Cycle Hurricane Motor Without Valves or Carburetor. It Has 21 Working Parts, Weighs 250 Pounds, and Has Produced 200 Horsepower.

air 14 hours and 51 minutes on the 1949-mile trip.

Postmaster General New reports that use of the air mail in transporting Christmas gifts and greetings this year more than doubled that in 1927. Mr. New said the westbound poundage out of Chicago this year was 22,616 pounds compared with 11,206 pounds last year. Eastbound air mail out of Salt Lake City in 1928 was 26,149 pounds compared with 10,489 in 1927.

Three new foreign air mail service routes will be established early in January, according to the postoffice department at Washington. The operating base and terminal in the United States for the services will be at Miami, Fla., where mail will be dispatched by air routes to Havana, Santo Domingo, San Juan, Porto Rico; Nassau, Bahama Islands, and Cristobal, Canal Zone.

Air mail service from the Florida base to the Bahama Islands, which will be known as Foreign Air Mail Route No. 7, operating on a one-way schedule, was announced to begin January 2.

The service to Cuba, Dominican Republic and Porto Rico and return, designated as Foreign Air Mail Route No. 6, will begin January 9. For the present service on this route will not be provided to Port Au Prince, Haiti, and exchange of mails will not be made at Santa Clara, Camaguey and Santiago, Cuba. All exchanges of Cuban mails will be made at Havana.

The round-trip service to the Canal Zone, to be known as Foreign Air Mail Route No. 5, will start January 11. A reduced service has been provided temporarily, scheduling two round trips a month, and mails will be carried only between the terminal points of Miami and Cristobal.

There will be a special schedule of postage rates on the foreign routes.

Mail for these new foreign routes will be handled by the domestic airmail service in transmission to Miami.

The Hurricane, a New Motor Introduced

By Chas. N. Tunnell

Here's a motor, called the Hurricane, minus valves and carburetor, declared by the inventors, H. S. Lyons and Victor Toce, airplane and automobile mechanics of Houston, Texas, to be a radical departure from any now existing. The working models for both a four-cylinder and an eight-cylinder motor have been tested successfully on numerous occasions. It is a two-cycle internal combustion motor of the radial type. There are but 13 working parts in the four-cylinder model and 21 working parts in the eight-cylinder model. Testing these models on steel tripods, the four-cylinder model produced from 80 to 90 horsepower. It has been tested for 60 hours of successful running with two hours the longest single period of operation.

The eight-cylinder Hurricane motor has been equipped with a propeller nine feet three inches long with a six and three-fourths foot pitch for testing. This regulation propeller for a Liberty motor produces 420 horsepower at 1600 r.p.m. The Hurricane motor turned this propeller at 1300 revolutions, producing what airplane mechanics estimate as 200 horsepower. At this rate, the motor used but seven gallons of gasoline per hour.

There is no carburetor, float valve or float chamber to the Hurricane motor, the fuel going direct to the "Fuelizer" where it is mixed with the proper air mixture and forced direct to the cylinders in a cold turbulent state. This principle of forcing the fuel direct instead of suction as in the four-cycle motors is believed to eliminate flying hazards.

Another feature of the fuel fed is that it is supplied through four simple open jets, eliminating all fine adjustments. The lubricating system is a circulating system that forces the oil direct to the motor bearings. Neither the oil nor the fuel is affected by continual flying in any position, bottom side up, side ways, perpendicular, or other positions. The fact that the gas is turbulent and combustion is practically one hundred per cent perfect, the motor is believed to be specially adapted for any climate or great altitudes.

With the two-cycle principle, there is almost a constant stream of fire, three cylinders of the eight being on charge. This fact with the natural balance practically eliminates all vibration. The eight-cylinder motor running at 1300 r.p.m. mounted on a light steel frame produced very little vibration. The four-cylinder model of the Hurricane motor weighs 175 pounds in the hand built working model, while the eight-cylinder model weighs 250 pounds. The finished and refined motors will weigh much less.

At present the Hurricane Motor Co. has started production in a limited way for a number of eight-cylinder aircraft motors. This motor will weigh not more than 225 pounds. It will have a displacement of 450 inches, a minimum horsepower of 150, 1800 r.p.m., a 3½ inch stroke, a 4½ inch bore, and will be 31 inches in diameter across the cylinders.

There are no fine adjustments, all castings are simple, while the pistons may have a variation of two thousandths of an inch with little difference.

Don't Worry; We Are Progressing

American Aviation Leading

By Douglas I. McKay

President, Standard Coupler Co.

THERE seems to be considerable confusion and misunderstanding about the status of this country, compared with European countries, in the several departments of non-military flying. At the moment it probably is true that the United States leads the world in commercial and civil aviation. But with regard to the transport of passengers by air, we lag far behind Europe. Several reasons for this have been assigned and all of them seem to have contributed their fair share to the result.

In the first place, aviation is not subsidized in this country as is so generally the case in Europe. For instance, the air transport monopoly of Great Britain, entitled "Imperial Airways, Ltd.", has been receiving a subsidy from the government amounting to almost $700,000 a year, as expressed in our money. It is believed that present plans contemplate the continuance by government of this or even greater assistance for several years. But in addition there have been, and in all probability will continue to be, government grants and subsidies for airports and special equipment placed at the disposition of the air transport company. Probably the amount of this form of subsidy granted within the past two years exceeds a million dollars. But in both France and Germany the government subsidies have been larger. France is reported to have contributed more than three million dollars and Germany more than six million during 1927 to the progressive development, extension and support of passenger transport by air.

Another reason that has delayed our progress in the passenger carrying field is the all round excellence of our train service, especially in the more heavily traveled sections and over the more popular routes of travel. And then, finally, the freedom from

Douglas I. McKay

customs barriers and the inconveniences of national frontiers within the continental United States.

The results obtained in Europe seem to have justified their cost, even at substantial government expense. Although within the British Isles the distances are relatively short, too short, if you please, to warrant substantial utilization, under existing circumstances, of air transport facilities, England has established the so called "Silver Wing" service, between London and Paris, probably the most famous air line in the world operating luxurious and dependable accommodations. It is rather interesting to note that this British air passenger service reports no accidents whatsoever resulting in either death or injury during the past two years. It is taken for granted in England that within the near future the demand for aerial travel will require the development of the shorter routes within the islands. And, meanwhile, far distant reaches of this service, even into India and Egypt, where Great Britain has special interests, may be expected to be regularly maintained.

In France the leading company is the "Air Union" which conducts the Paris-London service and other services to the South along the Mediterranean. Its airport of Le Bourget, outside of Paris, where Lindbergh landed, probably is the largest and best equipped in Europe. It is not only the center for French flying but also is the leading rendezvous for planes from all over the continent.

In Germany there is air connection for combined passenger and cargo service between more than 80 cities and towns within its own borders, all in regularly scheduled operation at this time. In addition there are, of course, the international routes. Mention might be made of the largest and latest carrier now in course of construction in Germany. It will provide accommodation for 20 passengers and 15 tons of cargo, and attain a normal speed in excess of 60 miles an hour. Combined totals for the European air transport companies disclose an astonishing degree of dependability in maintaining the time tables. Of flights scheduled, 94 per cent were completed. The only hindrance seems to have been dense fog.

One of the Fine Interurban Steel Coaches of the Texas Electric Ry. Upholstered in Leather, Recently, to Satisfy the Patrons Who Voted for It.

In view of all this accomplishment abroad the question naturally arises "What of the development of air passenger service on this side of the water, and what of New York?" Surely it may be conceded that, in spite of all obstacles, this department of aviation will grow apace in this country. It simply cannot be stopped. But much can be done to further, or much left undone to retard the intelligent and adequate provision of necessary facilities for air passenger transport. By virtue of natural circumstances, the leadership in many phases of national and international activity has been conferred upon New York. Geographical location, climate, population, wealth, and many other considerations have brought this about. But New York is not abreast of European centers in providing facilities for air passenger service. Indeed, as matters stand, it is not even in the procession. Unlike London with its Croydon, or Paris with its Le Bourget, it has no great municipal air transport terminus to serve its future requirements in this respect.

Imagine for a moment the probabilities of the next few years. It is not unreasonable to forecast that residents of the metropolitan area, from 50 to 100 miles away from the city, will be flying here to business, will be shopping and attending the theater here by air. Not only local residents but great numbers of people from all over the continent will be starting air voyages from here and will be landing here upon their return. It is probable that municipal airports of secondary importance will have to be established on the river fronts of Manhattan Island so that planes can land and take off with safety and with a maximum of subsequent convenience to their passengers.

A similar development of municipal terminals of secondary importance in other sections of the Greater City may be expected. Governors Island is considered among the probabilities in this direction.

But, almost as a certainty, these local fields will have to be augmented by large public terminals in the suburbs to serve as transfer points for long distance travelers, to afford itinerant flyers the advantages of landing, livery, fueling and repair accommodations, and to be focal points for a system of short stop flights corresponding somewhat, and for lack of a more descriptive term, to commutation service in the railroad field.

Many experts look toward Westchester county as an ideal place for a great airport. Its proximity to the city and the existing conveniences of travel recommend it. Its topography is most suitable. Its population is sufficiently large and of sufficient wealth to insure the fullest and most profitable utilization of air facilities for local service. This is of special importance during the ordinarily unprofitable period of beginning operation. Already it is traversed by the air route from New York to Boston. Bounded on the west by the Hudson River it is in direct line of flight from New York to Albany. But, of even greater importance, it is most conveniently accessible as a point of entrance to or departure from New York City to airplanes from any distant point on our continent or from across the Atlantic.

The probabilities are that as the public demand for an adequate airport terminal of first rank, to serve New York City, increases its pressure on public authorities, both of the city and of Westchester county, steps will be taken by the proper officials to reserve a suitable land area for development along this line. The one risk, that of delay until suitable areas are pre-empted or are held at excessive price, will be avoided by enlightened public opinion and by insistent public demand for prompt action on the part of responsible officials.

When you get into a tight place and everything goes against you, till it seems as though you could not hold on a minute longer, never give up then, for that is just the place and time that the tide will turn.—Harriet Beecher Stowe.

Drive thy business, or it will drive thee.—Benjamin Franklin.

A worker paves the way to advancement by proficiency in his present position.—Paul R. Jones.

New Electric Operations On Steam Roads

By

Colin K. Lee

Westinghouse Elec. & Mfg. Co.

A 44-Ton, 284 Hp. Westinghouse Equipped Double Power Plant Locomotive, Built for the Northern Illinois Coal Corpn.

Gas electric and oil-electric cars and locomotives, which have for some time been of increasing interest in the yearly records, take perhaps the leading place in 1928. The year has seen, among Diesel-electric locomotives, the first of employing the light-weight, high-speed Diesel; the first of welded construction. Several oil electric rail cars have made their first appearance in the United States. Gas-electric rail cars have become a matter of course, and are going into service in considerable number, including examples notable for extreme speed and for great power. Gas-electric drive has been applied this year to the industrial and contractors' type of locomotives, hitherto the undisputed domain of the steam "dinkey engine."

The most striking item of development was the big mainline locomotive of the Canadian National Railways. A double-cab unit, its two Diesels total 2660 h.p. These oil engines, each of them the largest ever to be placed in a locomotive, were built by the William Beardmore Co. Ltd. of Glasgow. Except that they are 12″, by 12″, 12 cylinder, Vee type, they resemble, in general design, the 330 h.p. six-cylinder Beardmore-built engines used for some time on Canadian National rail cars, and the nearly identical American-built engines of the Westinghouse Elec. & Mfg. Co.

The 1330 h.p. engine, like the smaller unit, turns at 800 r.p.m. The big Canadian locomotive weighs, complete, 650,000 lb. with 480,000 lb. on drivers. It is intended to handle important passenger trains on transcontinental service, and is fitted with arrangements for steam-heating the cars; sufficient steam being generated by the heat of the exhaust for average conditions down to 12 deg. F. below zero. An additional oil-fired boiler is provided in case the exhaust heat is inadequate. The electrical control utilizes the full engine power at from about 6 m.p.h. to above 50 m.p.h.

The wheel arrangement of each cab is 2-D-1 (4-8-2), there being four Westinghouse No. 359 motors per cab, or eight for the complete unit, 100,000 lb. tractive effort is developed in acceleration. Actual speeds in service on the road have exceeded 65 m.p.h.

There are several smaller Diesel-electric units on the year's record, built or ordered. The double-unit switcher of the Long Island has gone into service, the first locomotive to use the light, high-speed Westinghouse Beardmore engine, 86 tons, 660 h.p.

A 60-ton, single unit, yard switcher which is almost ready for service, has the distinction of being almost entirely of electric welded mechanical construction. The Pennsylvania and the Reading have ordered two oil electric rail cars driven by 330 h.p. engines.

The gas-electric car has not been eclipsed by Diesel activity. It still has a very large field where the better fuel economy of the Diesel is not sufficiently important to warrant its greater cost and weight. It would be useless to catalogue the cars that have gone in service, but a few orders of interest may be mentioned. The Reading, which had already 16 cars built or building, has ordered three more, with double power plants—500 h.p. per car. The Baltimore & Ohio received an extraordinarily fast double-engined gas-electric car rating 600 h.p. It has a maximum safe speed of 85 m.p.h., and will handle trains in a de luxe service between Washington and Baltimore, 37 miles in 50 minutes. The total train weight is 125 tons, and there are two intermediate stops.

Electric traction, allied with the gas engine, this year successfully entered the field of the "dinkey" or contractors' locomotive; a field in which, alone, it had never made much impression. Among the new gas-electric engines of this class is a 21-ton,

New High Speed 2660 Hp. Oil Electric Locomotive of the National Railways of Canada. Electrical Equipment by Westinghouse.

160-p.h. locomotive ordered by the Aluminum Co. of America from Baldwin. It will be used in building a tunnel for the Knoxville Power Co. The H. K. Porter Co. supplied a 44-ton, 284 h.p., double power plant locomotive to the Northern Illinois Coal Corpn. for use in strip pit coal mining. This is thought to be the largest gas-electric industrial locomotive actually in operation.

The Great Northern has been proceeding with its electrification, which began two decades ago with its Cascade tunnel alone, operated by 6600-volt, three-phase engines. About two years ago the electrification was changed to 11,000 volts, single phase, extended down the west side of the mountain, totalling 26 miles, and new motor-generator locomotives were put in service. Additional engines have this year been bought to operate the present extension east from the tunnel, which makes the electrified section total 73 miles.

The new locomotives are, in general, similar to the previous ones—two-cab units, weighing about 715,000 lb. The permissible locomotive speed has, however, been increased by 20 per cent. In place of the former 2500-ton trains moving at 7 m.p.h. tonnages of 3500 are now being handled at 15 m.p.h. over this 2.2 per cent grade, the ruling grade for the entire system. A novel feature of the new locomotives is the trial of roller bearings on the motors of one locomotive.

"Staggering" Traffic in New York

Every skyscraper put up in New York adds to the congestion in the streets and increases the burden on the subway lines. Recently the health commissioner of the city suggested that employes come to work in platoons, at different hours, and having them leave in the same order. A large insurance company has put the plan into effect, and relief has been observed at the stations these employes use. Various city departments are expected to adopt the plan.—*Trollicar Topics.*

A 21-Ton, 160 Hp. Westinghouse-Equipped Gas-Electric Locomotive for the Aluminum Co. of America.

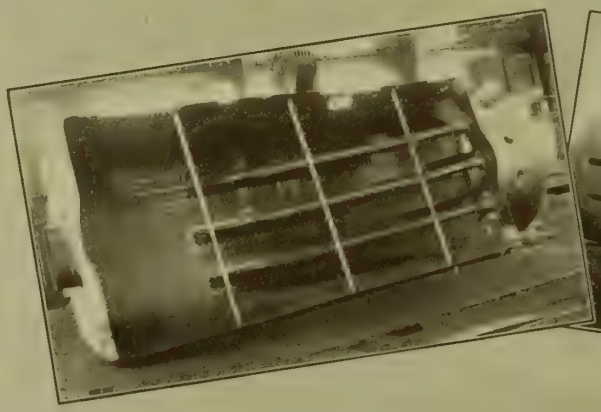
In The Camera's Eye

THE EVENTS OF A YEAR 1928

IN THE succeeding pages are shown, pictorially, some of the outstanding developments of the year just ended in the field of transportation, as they were recorded in the magazine's pages from month to month.

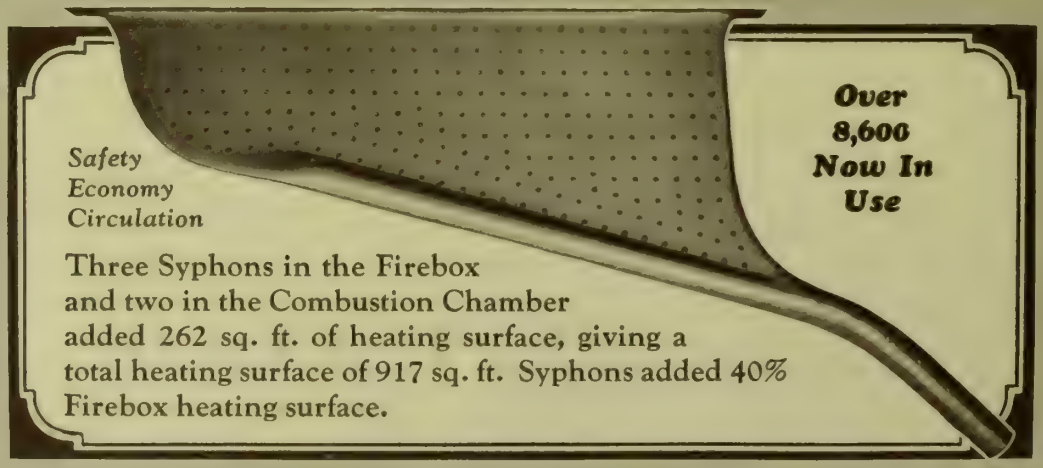
TRANSPORTATION
The National Monthly of the Transportation Industry

The Largest Locomotive Boiler Ever Built



is equipped with

Nicholson Thermic SYPHONS



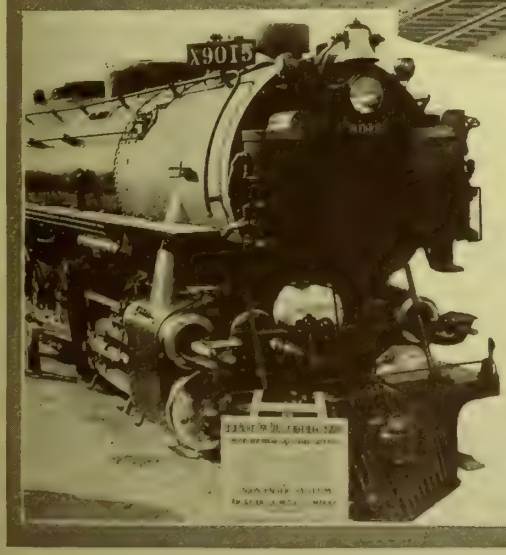
LOCOMOTIVE FIREBOX COMPANY

NEW YORK CHICAGO MONTREAL

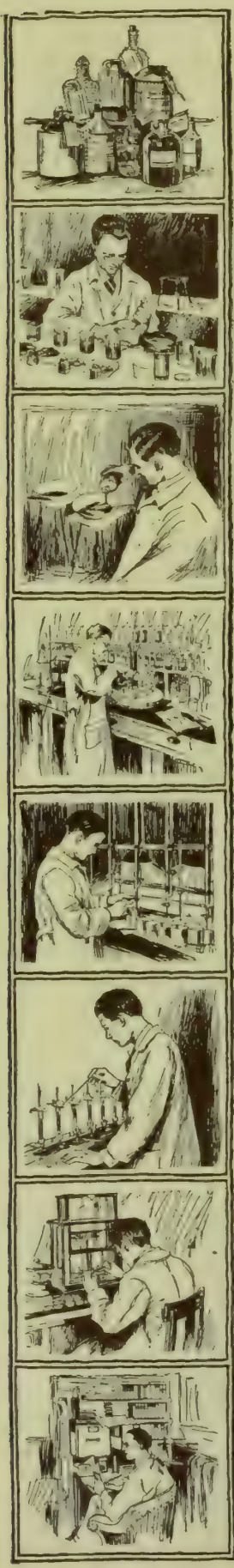
"The Heart of the Locomotive"

Modern locomotives of the Pennsylvania Railroad, shown at Atlantic City in June. At left, Pacific type, passenger engine; cylinders and locomotive bed cast together. At right, Mountain type, weight 382,-400 lbs.

In circle: Boston & Maine's new super-power engines built by Lima Locomotive Works; equipped with booster.



At left, Union Pacific type, 3-cylinder freight engine for Rocky Mountain service from Laramie to Green River. Total weight is 496,500 lbs. Right, the President Cleveland, one of Baltimore & Ohio's new Pacific type.



Dearborn

REG. U.S. PAT. OFFICE

Accomplishment

Accomplishment

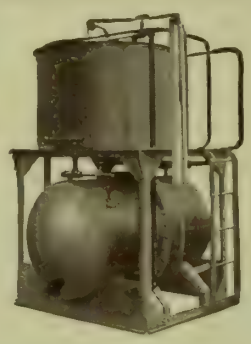
Into the records of many railroads Dearborn Accomplishment has been written. Here are glimpses, found in recent reports, of the good work being done with Dearborn Water Treatment:

The Man Who Knows

"Called at B ..... and visited with Gen. Foreman W....., R. R. Foreman F....., Gen. Boiler Foreman L..... They all stated that Dearborn was giving them 100% results—no foaming, and working 30 days between washouts. Was told by Mr. A..... that he had advised his superior officer that we had saved them a great deal of money."

Cleaning Up Scale

"Inspected two engines. The boiler of engine ..... is showing decided improvement, the crown and side sheets showing about 50% clean metal and stays are beginning to scale off. Some of the old scale still in evidence, but don't want it to come down too fast. Engine ..... is cleaning up very nicely, showing about 75% clean metal on crown and firebox sheets and the stays are nearly clean. All concerned are very well pleased.



The dependable accuracy of Dearborn Treating Plants, small, inexpensive, automatic in operation and requiring charging but once daily, adds the final element of effectiveness to the use of Dearborn Treatment.

Results Count

"Spoke to Mr. O....., Gen'l Supt., also Mr. A....., M. M., and they are using Dearborn Treatment in overcoming foaming with very good results. They have several engines that will have to be brought in, in the near future, for renewal of tubes because they have gone the limit—4 years—and there has been no trouble with leaks. Mr. O..... and Mr. A..... were very high in their praises of the condition of their motive power equipment at this time and they gave credit to the efficiency of our treatment."

Fuel Savings

"At H....., was advised by Road Foreman K . that they were saving one-half ton of fuel every trip on the first grade west since starting the use of Dearborn."

* * * * * * *

For accomplishment such as this depend upon the house in which success has become an obligation. Write us or talk with our service man. Tests can be arranged on any divisions where the water is causing trouble.

Every Dearborn Service is as reliable as the one with which you are most familiar. How can we serve you further?

Rust Prevention

NO-OX-ID is in service on 100 railroads. Use it every place where rust might cause trouble or loss.

Protection of Laid Up Power

Formula 400 B prevents rust in boilers, lines, heaters, etc., at small cost.

Rapid Scale Remover

Dearborn Special 134 dissolves scale in water lines, heaters, pumps, cooling jackets, condensers.

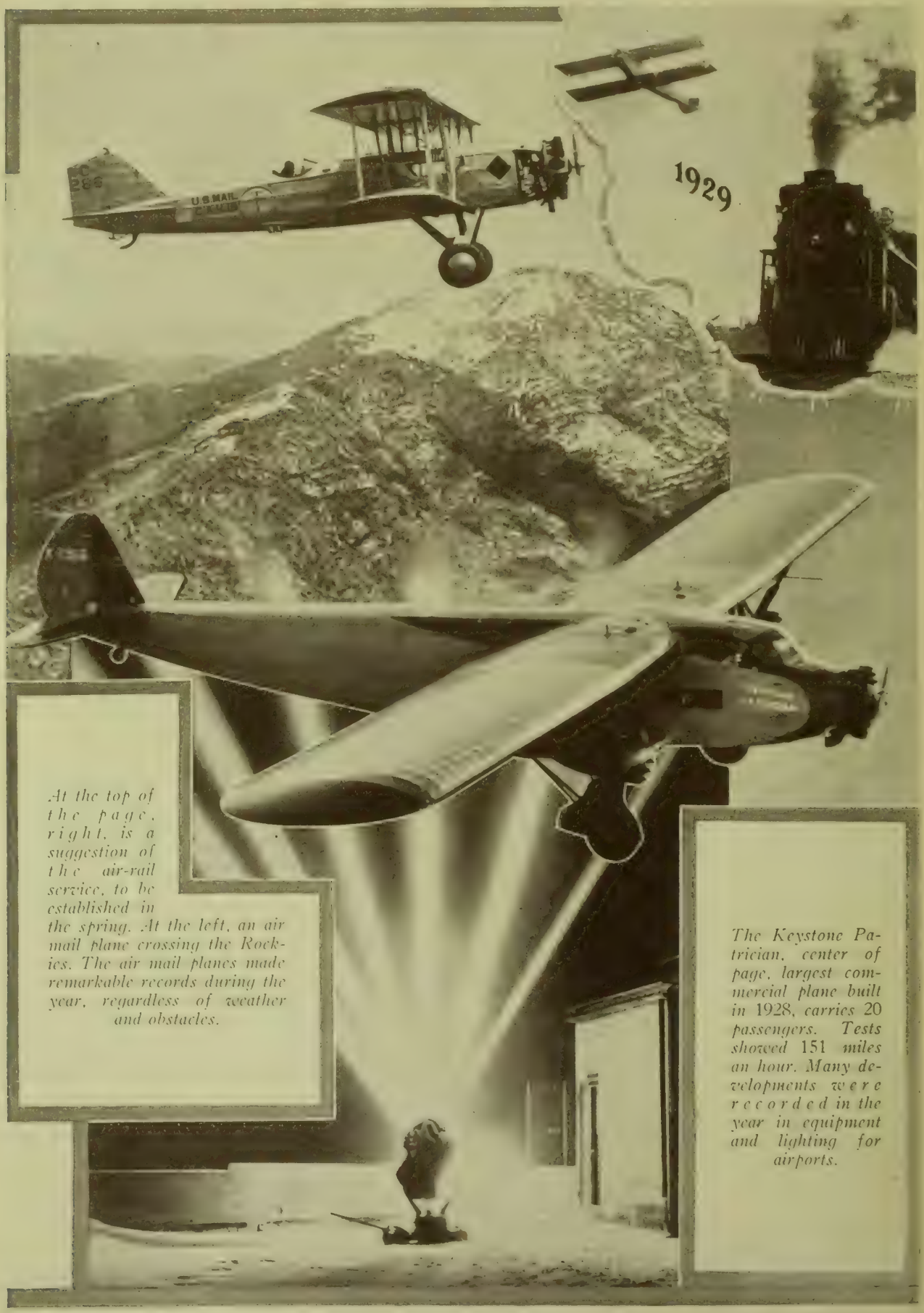
Cleaners

Graduated strengths—for all purposes—from cleaning clothing to car floors.

Dearborn Chemical Company

Chicago Los Angeles San Francisco New York

Many imposing structures were built in 1928 by the railroads. At the left is the new office building of the Missouri Pacific at St. Louis. Upper right, the new office building of the Southern Railway at Atlanta, and below, the new North Station of the Boston & Maine at Boston, constructed by the United Engineers & Constructors, Inc.



At the top of the page, right, is a suggestion of the air-rail service, to be established in the spring. At the left, an air mail plane crossing the Rockies. The air mail planes made remarkable records during the year, regardless of weather and obstacles.

The Keystone Patrician, center of page, largest commercial plane built in 1928, carries 20 passengers. Tests showed 151 miles an hour. Many developments were recorded in the year in equipment and lighting for airports.

KEYSTONE PATRICIAN

The Outstanding Development of 1928 in the Commercial Transport Field

This giant 20-passenger monoplane — designed and constructed by America's leading big ship manufacturers—exceeded all previous records for Speed and Climb in the multi-motored field during actual performance tests in November, 1928.

Powered by three Wright Cyclone engines of 525 h.p. each—

High speed	151	m.p.h.
Cruising speed	130	m.p.h.
Crew	2	
Passengers	20	
Pay load	3880	lbs.
Ceiling	17400	feet
Range	750	miles

Detailed information on request.

KEYSTONE

KEYSTONE AIRCRAFT CORP. BRISTOL, PENNSYLVANIA

The new 62-mile line of the Northern Pacific, costing $2,500,000, from Glendive to Brockway, Mont., was opened during the summer. At the right President Donnelly is shown driving the golden spike. At the left the first train is welcomed by throngs many of whom, the railroad people say, had never seen a train before. At the bottom is the new 3-track lift bridge of the D. L. & W. over the Hackensack River between Newark and Hoboken.

Staybolts, the vital elements in sound boiler construction are subjected to constant strain from vibration, contraction and expansion, besides the added stress inseparable from working under load and pressure. To meet these exacting requirements the use of

Tennessee Charcoal Bloom Iron

for staybolts—an especially manufactured, proven material—insures long service life, with the minimum of replacements and renewals.

"In Use Since 1844"

EWALD IRON COMPANY
LOUISVILLE

CHICAGO NEW YORK ST. PAUL

The year just closed was unusual in passenger car refinements. At the left is a corner in a compartment of the new Twentieth Century cars.

Many railroads installed roller bearings on passenger train equipment in 1928.

New design of self-propelled car introduced.

Transcontinental trains of the Canadian National Rys., are equipped with radio, loud speakers and headphones. A number of new designs of light-weight, noiseless street cars have been introduced.

View in the new observation, self-propelled cars of the Chicago Great Western.

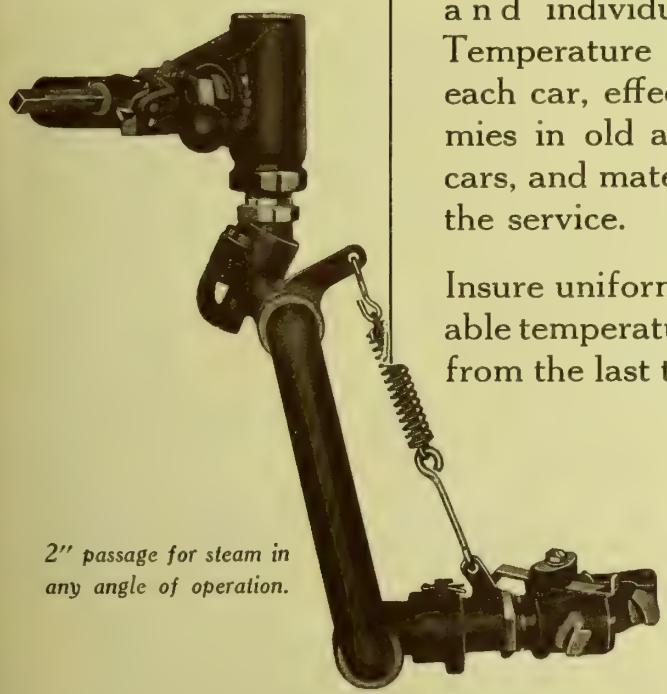
SAVE

This — and — This

Vapor Connections last for years instead of for weeks.

Vapor 2″ Steam Connections and individual Automatic Temperature Control for each car, effect large economies in old as well as new cars, and materially improve the service.

Insure uniform and comfortable temperature in every car from the last to the first.



2″ passage for steam in any angle of operation.

Prevent over-heating—reducing coal consumption while in service.

Automatically reduce layover temperature—reducing coal consumption while not in service.

VAPOR CAR HEATING CO., INC.

RAILWAY EXCHANGE, CHICAGO, ILLINOIS

VAPOR SYSTEM

Vapor Company's Flexible Metallic Conduit Insures Adequate Steam Supply To The Last Car Of The Longest Train

AMERICA'S LONGEST TUNNEL IS FINISHED

The Great Northern Railway Company announced that operation of trains through the Cascade Tunnel, recently completed, would begin January 12. The illustration at the top shows a Baldwin-Westinghouse 371-ton single phase motor generator locomotive used on this section of the line. At the right is shown the East Portal of the tunnel.

At the right is shown one of the distributing stations in the electrified section of the Great Northern in the Cascade Mountains.

GREAT NORTHERN

Baldwin-Westinghouse Locomotives in Operation Over the Cascades.

Leveling the Cascades

THE Great Northern Railway has further strengthened its position as one of the greatest transport systems of the world by the completion of the Cascade tunnel at a cost of $14,000,000. This new tunnel, nearly 8 miles long, is said to represent the finest achievement in railroad tunnel construction and operation in the world.

In January, 1929, one of the powerful Baldwin-Westinghouse electric locomotives pulled the first train through the new tunnel thereby inaugurating all-electric service between Skykomish and Wenatchee, a distance of 73 miles.

Electric locomotives are hauling 3500-ton trains up the 2.2% grades at 15 mph. in approximately one-third the time required with steam operation.

Thus the Great Northern furnishes further evidence of the possibilities of electric motive power to conquer mountain grade sections and at the same time to afford many other advantages for better all around operating conditions and more inviting service.

The Baldwin Locomotive Works
Philadelphia, Pennsylvania

Westinghouse Electric & Manufacturing Company
East Pittsburgh, Pennsylvania

ELECTRIFICATION SERIES AD No. 2

Baldwin-Westinghouse

T 30296

Below is shown the first train emerging from the Moffat Tunnel. This tunnel, upon which work began in 1923, was opened to traffic, formally, February 26, 1928. It is six and two-tenths miles long.

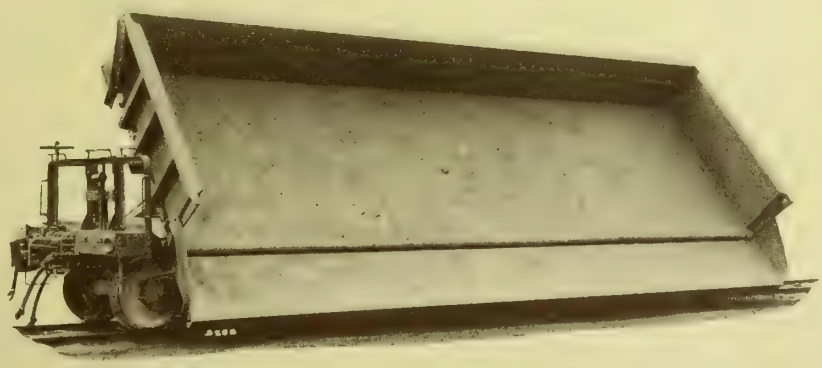
One of the important events of 1928 was the air meet at Los Angeles in September.

The New York Central's 35-story building constructed in 1928.

One of the American Rolling Mill Company's new cars, designed for hauling molten metal.

Koppel Trunnion Cars provide quick, clean discharge of lading at a sufficient distance from the side of the track so as to not only clear the ties but ballast. Result —Elimination of extra labor in clearing discharge after removal of empty car. You do not have to pound and shovel to clean the car—the discharge is free.

There are bulletins describing in detail both types of Koppel Trunnion Cars. You may have them.



30 Cubic Yard—Trunnion Dump Drop Side Car

KOPPEL INDUSTRIAL CAR & EQUIPMENT CO.

KOPPEL PENNA.

SALES OFFICES

NEW YORK	PITTSBURGH	CHICAGO	SAN FRANCISCO
30 Church St.	Farmers Bank Bldg.	Peoples Gas Bldg.	951 Indiana St.

BEFORE
YOU BUY
OR REPAIR
YOUR NEXT LOT of CARS

Be Sure To Find Out
What the 1928
Developments In

SESSIONS

STANDARD

New York Since

STANDARD

DRAFT GEAR PROTECTION

Really Mean To You and Your Road

COUPLER Co

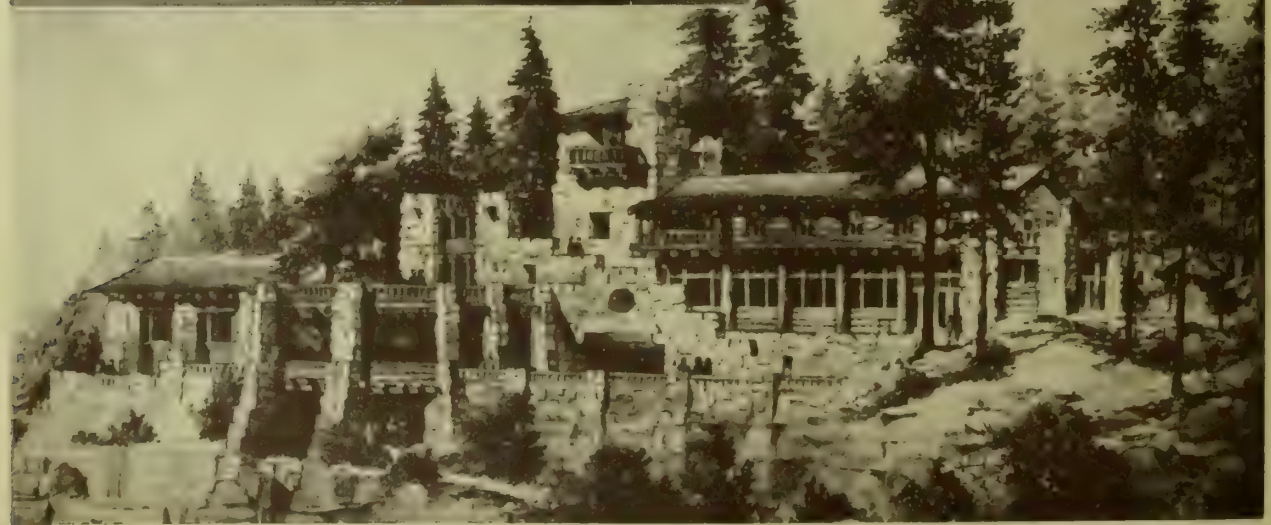
1893 Chicago

At the top is shown the Southern Pacific's new type of reversible engine with enclosed cab.

At the left is the Pickwick's new Nitecoach, one of the year's developments in bus sleepers. The berths are narrow and necessarily pretty close to one another, but you can sleep.

Below is the Grand Canyon Lodge built by the Union Pacific Railroad at Bright Angel Point on the rim of the canyon. The lodge was formally dedicated during the past summer.

Competition in improved dining car service has been very keen in the last year. One of the outstanding events was the appointment by the Milwaukee of George Rector, to be chef de cuisine.



The B.-A. Co.

Devices

The B.-A. Co. Sludge Remover

plus

The B.-A. Co. Power Attachment

equals

Simplicity and Efficiency in the proper blowing of locomotive boilers.

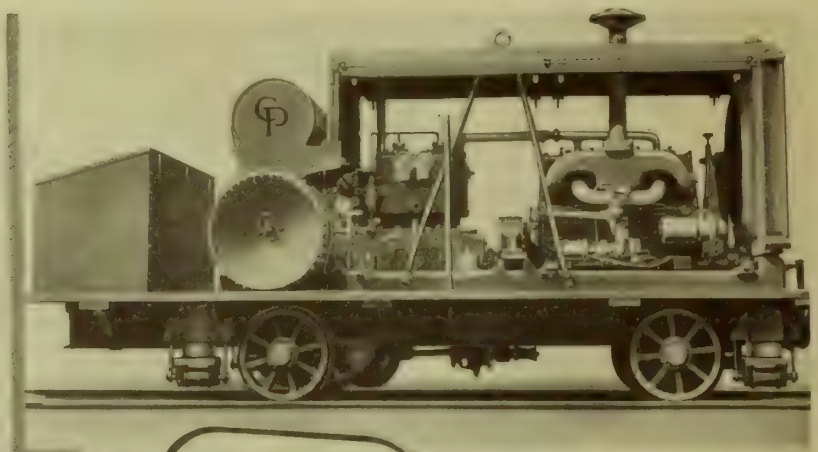
This Company is engaged primarily in the manufacture and supply of Boiler Chemicals for water treatment. Its activities in rendering the necessary expert service in this connection, are properly extended to cover the installation and service of B.-A. Co. Blow Off Cocks. These items are all consistently designed to obtain one end: The promotion of Locomotive Boiler Efficiency.

THE BIRD-ARCHER COMPANY

NEW YORK

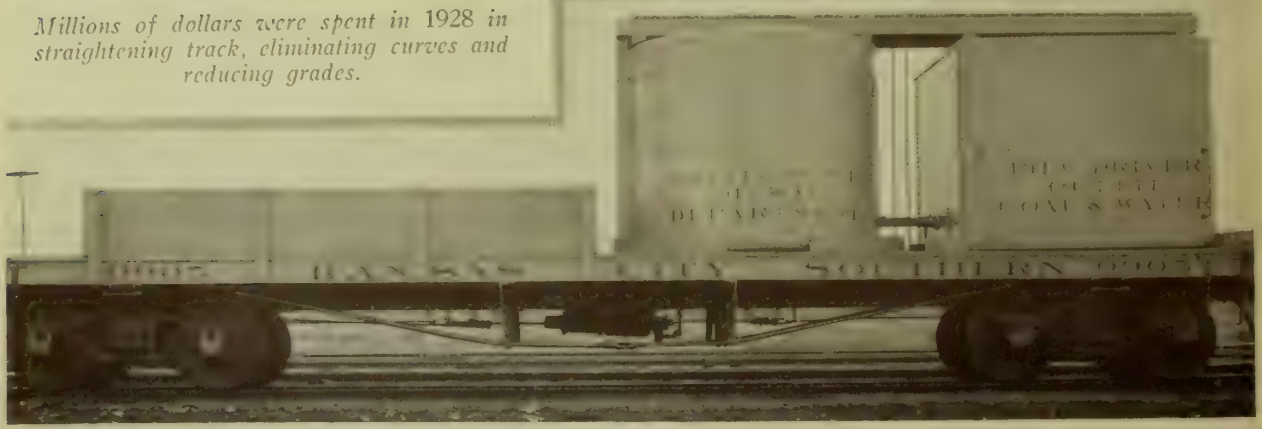
PHILADELPHIA CHICAGO ST. LOUIS MONTREAL WINNIPEG

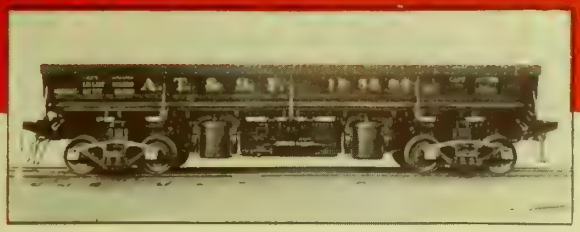
BUENOS AIRES Argentina MANILA P. I. SYDNEY Australia

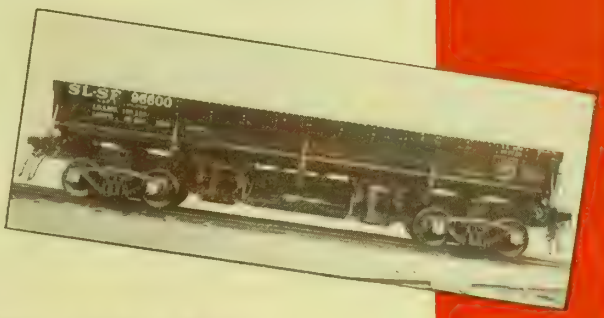


At the left is shown a new cinder plant constructed at Frankfort, Ind., by the Roberts & Schaefer Co. At the top is the new style gasoline engine-driven compressor car introduced last year by the Chicago Pneumatic Tool Co. Below it is the Fairmont's new extra gang motor car designed to pull trailers with from 50 to 200 men.

Millions of dollars were spent in 1928 in straightening track, eliminating curves and reducing grades.







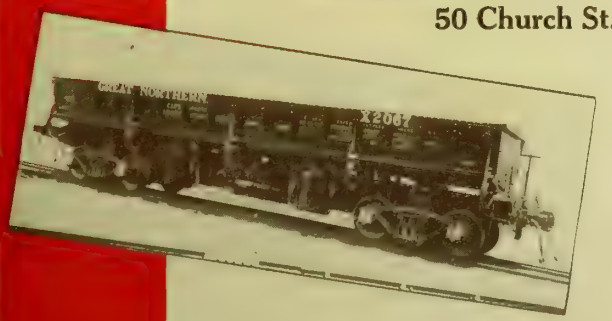
MAGOR
AUTOMATIC AIR DUMP
CARS

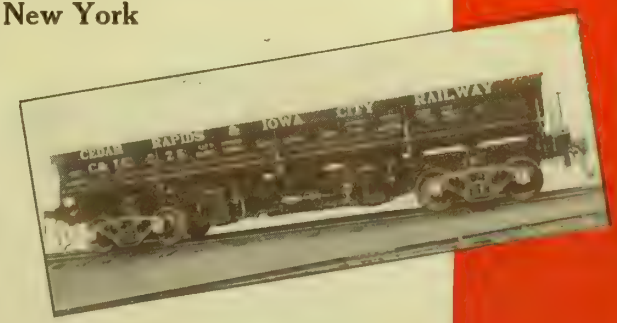
RUGGED Magor Automatic Air Dump Cars are built to withstand the shocks and stresses of loading and unloading the biggest boulders encountered in construction work. The car body has complete and stable support at all times during transit on the center sill of the car underframe.

EFFICIENT The dumping mechanism is positive in action and requires minimum amount of air for dumping. The cars dump automatically to either side with equal facility and without prior adjustment. They attain a fifty degree angle in full dumped position which with the dropped side door assures complete discharge of load clear of track ballast.

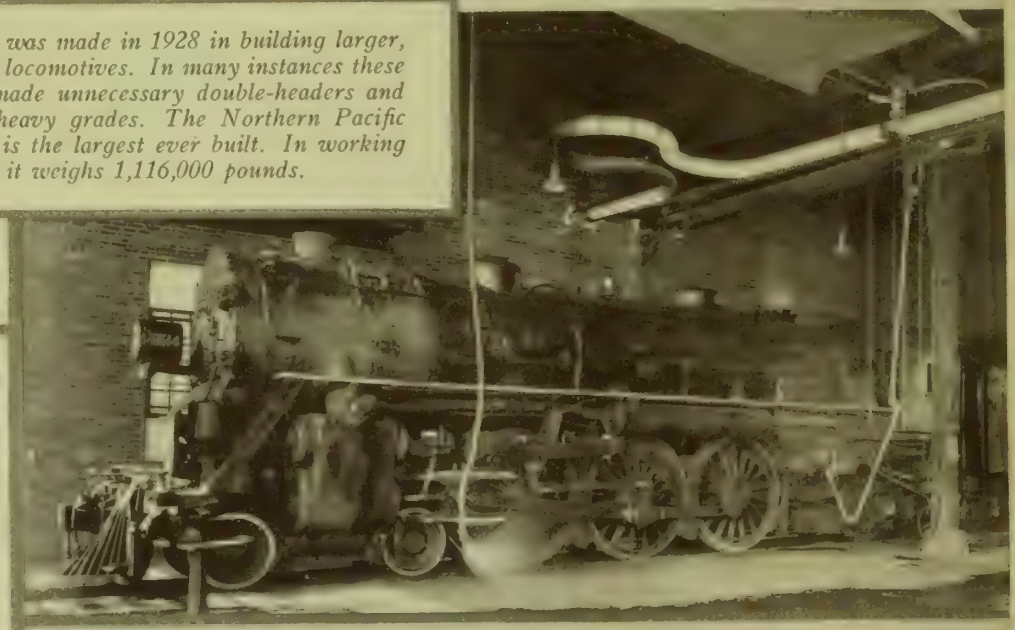
SERVICEABLE Magor cars are designed for all classes of construction and maintenance work and at the same time suitable for regular revenue service. It is impossible for the cars to dump prematurely or while in transit.

Magor Car Corporation
50 Church St., New York





Some progress was made in 1928 in building larger, more powerful locomotives. In many instances these engines have made unnecessary double-headers and pushers over heavy grades. The Northern Pacific engine, above, is the largest ever built. In working order it weighs 1,116,000 pounds.



The Big Four made many improvements recently in its Riverside terminal at Cincinnati. Below is the new 29-stall enginehouse; at right, interior view shows direct steaming arrangements.

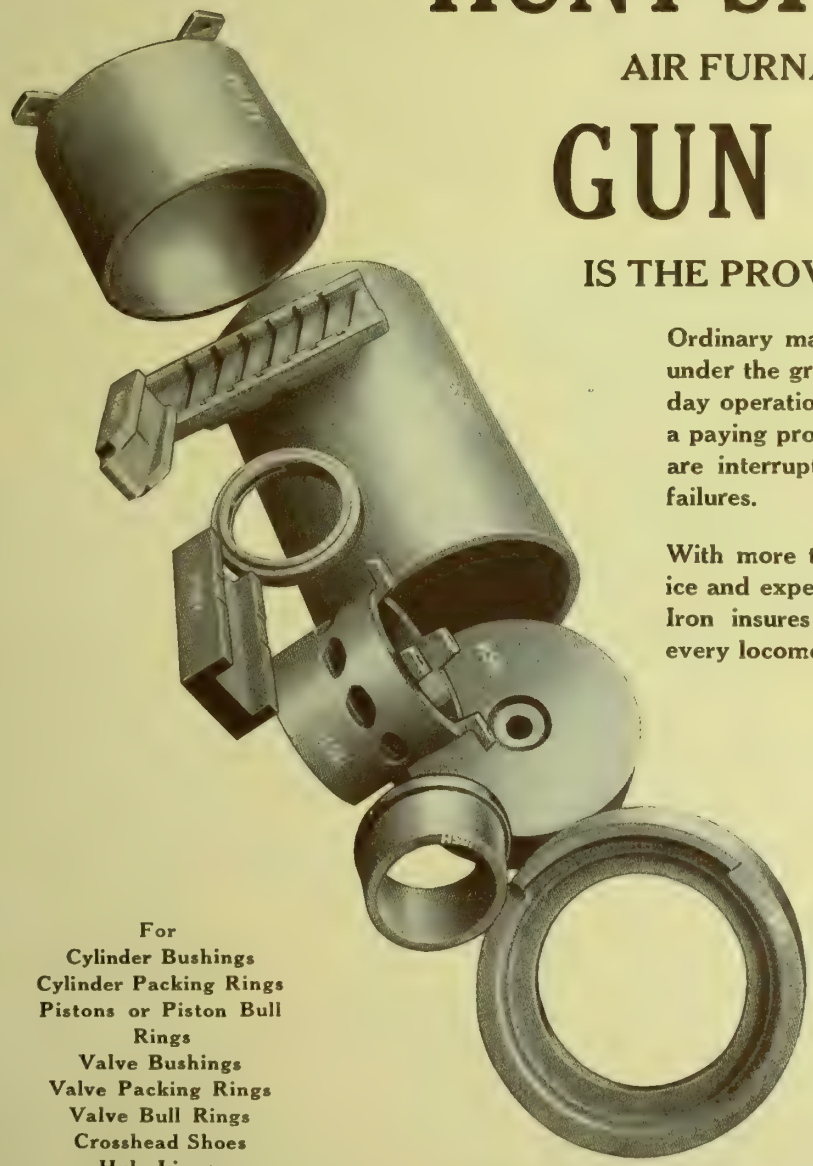
Where Wear Is A Problem

HUNT-SPILLER

AIR FURNACE

GUN IRON

IS THE PROVEN SOLUTION



Ordinary materials do not stand up under the grueling service of present day operation and long runs are not a paying proposition if the schedules are interrupted by frequent engine failures.

With more than 100 years of service and experience Hunt-Spiller Gun Iron insures greater earnings from every locomotive.

For
Cylinder Bushings
Cylinder Packing Rings
Pistons or Piston Bull Rings
Valve Bushings
Valve Packing Rings
Valve Bull Rings
Crosshead Shoes
Hub Liners
Shoes and Wedges
Outer Bushings for Floating Rod Application

There is more to know about Gun Iron. Write Us.

HUNT - SPILLER MFG. CORPORATION

J. G. Platt, Pres. & Gen. Mgr. V. W. Ellet, Vice-President

Office and Works

383 Dorchester Ave. - South Boston, 27, Mass.

Canadian Representative: Canuck Supply Co., Ltd., 997 Aqueduct Street, Montreal, P. Q.
Export Department: International Rwy. Supply Co., 30 Church Street, New York, N. Y.

The Pimlico, one of the Pennsylvania's new all-steel horse express cars.

Oil electric freight locomotive built, recently, for the New York Central. The locomotive weighs 145 tons.

Electrification of the Boston, Revere Beach & Lynn was completed last year. The existing passenger coaches were equipped with motor and control equipment, and modernized.

Selflock Unit Nuts for 100% Lock Nut Efficiency

Derailments, costly delays,—sometimes disaster are often caused by loose nuts and bolts, made loose by the constant vibration and pounding of railroad traffic.

Selflock Unit Nuts are the one perfect safeguard against loose rail, crossing, and frog bolts.

The unique design of the Selflock thread forms a gripping contact on both sides of every bolt thread that defies this pounding vibration.

Only in Selflock Unit Nuts do you get 100% lock nut efficiency and the permanent protection that goes with it.

Specify genuine Selflocks identified by the "Star Crown".

SELFLOCK SCREW THREAD PRODUCTS

GRAHAM BOLT AND NUT COMPANY
PITTSBURGH Established 1874

"The Nut with the Star Crown"

"They Lock on every Thread"

SELFLOCK

(PATENTED)

The Black Spot of 1928

Locomotive Buying Much Reduced

ELSEWHERE in this issue L. A. Downs, president of the Illinois Central R. R., says: "It is hoped that the railroads of the country may be able to make even larger contributions to general business activity in the next year than in the last by entering more largely into the purchase of new equipment for replacement, improvement and expansion.

"Regardless of what view may be taken as to the future trend of railway freight traffic, there is no question about the continuing need for additional equipment with which to replace cars and engines grown obsolete—."

Without doubt one of the black spots in an otherwise highly prosperous year for industry has been the light purchases of cars and locomotives by the railroads.

Too much dependence has been placed on the reports of serviceable locomotives. Reports show that on November 1, 1928, there were 4,958 serviceable locomotives stored compared with 5,520 on the same date in 1927. One must remember, however, that the past two winters have been extremely favorable for operating, and that an extremely cold or bad year will alter very materially these conditions. It is also questionable just what the effect on coal consumption and operating costs will be with a fuller utilization of the total reported serviceable engines, as many of the locomotives now reported serviceable but stored are obsolete as compared with new types of power.

There is no doubt that a broader policy and more liberal buying of locomotives during 1929 than prevailed in 1928 will not only prove beneficial to industry at large but also will show its wisdom in ultimate operating costs.

Now, here is the bad news about 1928: Our records show a total of only 449 honest-to-goodness steam locomotives ordered from the three largest builders for railroads and industrial corporations in the United States. In addition, however, the same builders received orders for 57 engines for export. Our records show that orders were placed with the railroads' own shops for the construction of 77 locomotives, and that 98 were ordered in Canada. This makes a total of 681 steam engines ordered in Canada and the United States. These figures, however, do not include orders placed for geared, narrow gauge or other industrial engines because such inclusion would tend to make figures misleading. During 1928 orders were placed for 55 electric and 15 oil-electric locomotives, making a grand total of 751.

Orders placed since the December issue of Transportation include the following: Santa Fe, four 4-8-4 type locomotives with Baldwin; Burlington, six 2-10-4 type locomotives with Baldwin; Great Northern, six 4-8-4 type locomotives with Baldwin; Louisville & Nashville, 24 Mikados with Baldwin; Missouri Pacific, 25 switching engines with Lima; New York Central, 100 Mohawk type locomotives with American; Niagara Junction Railway, one 60-ton locomotive with Westinghouse; Waterloo, Cedar Falls & Northern, one 50-ton class B-1 locomotive with Westinghouse.

The Chesapeake & Ohio is inquiring for 15 switching engines; the Georgia Northern, one Pacific type; Illinois Central, 15 switching engines; National Railways of Mexico, 3 tenders.

A Fine Example of Modern Power Exemplified on the Great Northern Railway.

HOW CAN YOU afford not to at least investigate the Pierce Locomotive Cut Off Control when it has proven a 12% increase in gross ton miles per hour?

We will demonstrate on your own locomotives, without mutilation and without payment, unless you are satisfied.

Ask us, please.

THE PILLIOD COMPANY

Railway Exchange
Chicago

30 Church St.
New York

Makers of
Baker Valve Gear
Southern Valve Gear
Young Valve Gear

Stoker Firing Means Increased Locomotive

286 stoker fired locomotives were ordered from the locomotive builders during the ten months between February 1st, and December 1st, 1928.

Type "BK" Stoker

During the same period 320 stokers were applied in railroad shops to existing power.

In every case application of stokers to locomotives of even moderate dimensions has increased locomotive power output.

Type "B" Stoker

At the same time, by enabling use of cheaper grades of fuel, stoker firing has also shown a reduction in fuel costs.

Duplex Stoker

Capacity Lower Fuel Costs

Where locomotives are adapted to burn low priced fuel such as screenings and lignite almost unbelievable economy has resulted from stoker firing.

Burning fuel running 90% slack in its stoker fired locomotives, one road that formerly used mine run coal in all its ocomotives reduced its total fuel cost 30%.

Another road by use of straight slack instead of mine run reduced its total fuel cost 73%.

Wherever there is a price differential as between screenings and mine run this proportionate saving is available to any railroad.

THE STANDARD STOKER COMPANY, Inc.

New York Chicago Erie Pittsburgh

Car Purchases of A Year

Freight Equipment Orders Slack

THE outstanding event of 1928 in the passenger car industry was the Pennsylvania's decision to eliminate wooden cars on all regular passenger trains. The company ordered 1,171 cars, which probably is the largest number of passenger train cars ever ordered by any one railroad system in a calendar year.

Our figures show a total of 2562 cars ordered in the United States and Canada during 1928 for the steam railroads. In other words, these figures do not include street and interurban cars. Of this number 200 cars were self-propelled. The total for the year is about 25 per cent larger than the number ordered in 1927 and about 10 per cent over 1926.

Orders placed since the December issue of Transportation include the following: Cumberland & Pennsylvania, one double power plant passenger and baggage gas-electric rail motor car from J. G. Brill Co.; Detroit & Mackinac, one combination passenger, baggage and mail gas-electric rail motor car from J. G. Brill Co.; Great Northern, six dining cars from Pullman Car & Mfg. Corpn.; Missouri Pacific, 13 baggage and mail cars from St. Louis Car Co., 13 baggage, 11 coaches, with smoking compartment, two diners and one cafe club car from American Car & Fdy. Co.; Norfolk & Western, 10 baggage and express cars and five baggage and mail cars from Bethlehem Steel Co.; Reading Company, three double power plant combination passenger, baggage and mail gas-electric rail motor cars from J. G. Brill Co.

The Santa Fe is inquiring for 21 gas-electric rail motor cars and 14 mail and baggage cars; Boston & Maine, 10 baggage and mail cars; Chicago & North Western, 10 baggage cars; Rock Island, 14 gas-electric rail motor cars; Great Northern, six gas-electric rail motor cars; New York Central, 22 coaches, five observation coaches and four smoking cars; Union Pacific, five dining cars. The Union Pacific also is understood to be in the market for 25 coaches, 25 baggage cars and five horse express cars. The Illinois Central has authorized the purchase of six combination mail cars, five baggage and express cars, five horse express cars, ten coaches and eight chair cars. The inquiry will be issued later. The Chicago Railways Co. has asked permission to purchase 100 new street cars.

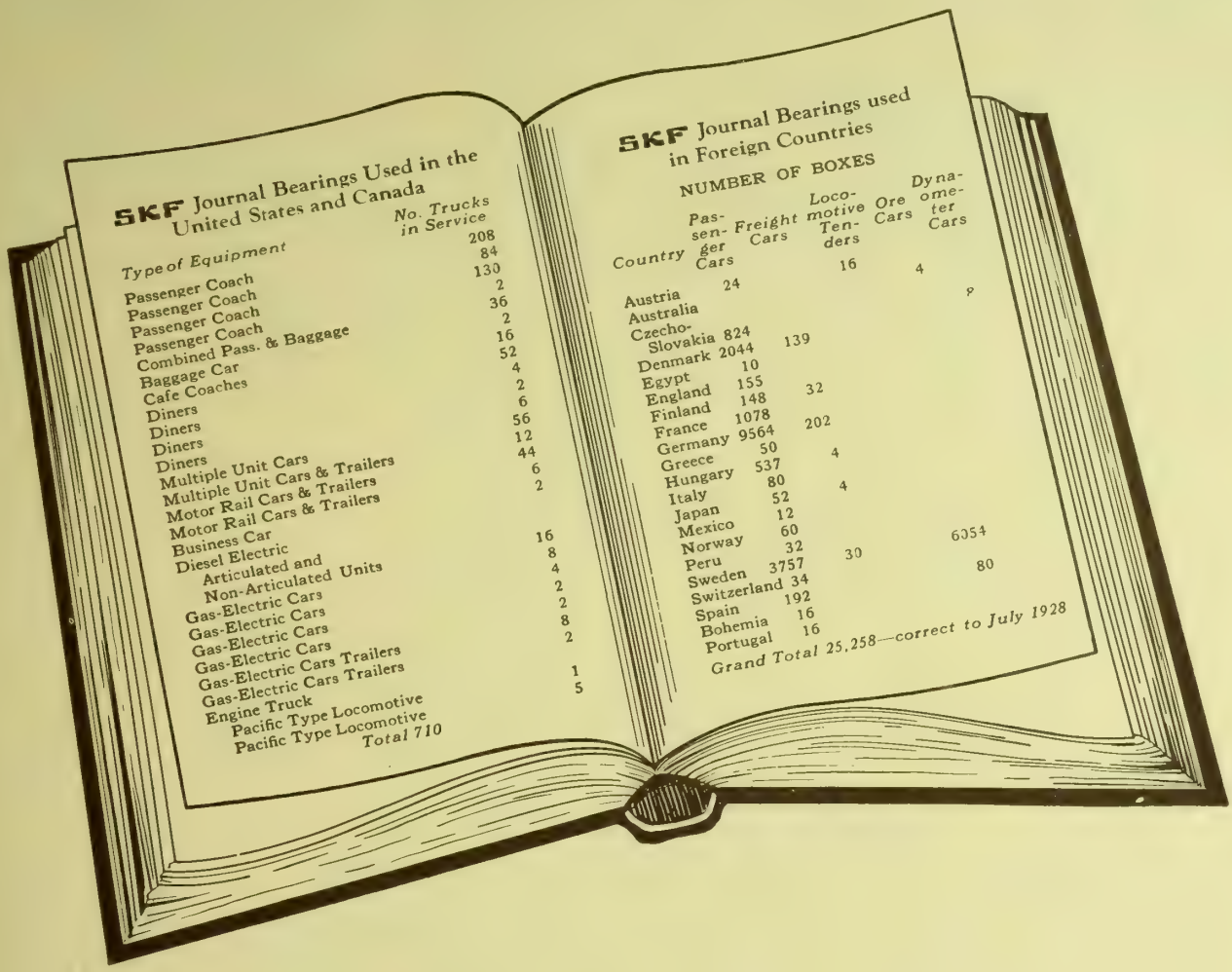
The best that one can say about freight cars ordered in 1928 is that the record is behind us. Many unusual conditions contributed to the situation: increased efficiency in operation, speeding up freight train movements, the increased capacity of freight cars, and the fact that all-steel cars lend themselves more readily to reconstruction.

There is some question, however, as to how elastic these factors are, and what the ultimate result will be on operating costs. Present methods tend materially to increase empty car mileage, with the attendant increase in operating costs.

When these conditions are considered, with a generally prosperous year and good crops before us we can look, with optimism, for a much better year in 1929. In fact, the market already is showing a much improved condition with orders and inquiries for the past 60 days totaling close to 30,000 cars.

Our figures for 1928 show that orders were placed for a total of 64,591 freight cars in the United States and Canada. Of this number 8926 were Canadians, 4101 were exported and 51,564 were for domestic use. Since December the following inquiries and orders have been reported: The Chicago & North Western is inquiring for 1000 gondola cars and 1000 automobile cars; Elgin, Joliet & Eastern, 250 gondola cars and 75 flat car bodies; Ilinois Central, 1500 hopper cars and 200 flat cars; International Railways of Central America, 25 stock cars; Maine Central, 1000 box cars; Utah Copper Co., 100 ore cars and 20 dump cars; Western Fruit Express, 800 underframes for refrigerator cars. The Illinois Central will issue an inquiry for 1000 automobile cars in the near future, and later, an inquiry for 25 cabooses.

The Akron, Canton & Youngstown ordered four dump cars from Magor Car Corpn.; Amtorg Trading Corpn., 20 dump cars from Magor Car Corpn.; Santa Fe, 500 refrigerator cars, 300 box cars, 425 gondola cars and 125 cabooses from American Car & Fdy. Co., 700 box cars from General American Tank Car Corpn., 500 box cars from Pullman Car & Mfg. Corpn., 250 gondola cars from Standard Steel Car Co., 500 box cars from Pressed Steel Car Co.; Boston & Maine, 500 hopper cars from Standard Steel Car Co.; Chicago & Eastern Illinois, 200 automobile cars from Mt. Vernon Car Mfg. Co.; Chicago & North Western, 200 Hart ballast cars from Rodger Ballast Car Co.; Chicago Great Western, 300 automobile and 200 box cars from Pullman Car & Mfg. Corpn.; Chicago, Indianapolis & Louisville, 10 underframes for caboose cars from American Car & Fdy. Co; Chicago, South Shore & South Bend, two caboose cars from American Car & Fdy. Co.; Fruit Growers Express, 196 underframes from Ryan Car Co.; Great Northern, 200 general service cars from Pressed Steel Car Co.; Lehigh & New England, repairs to 200 steel hopper cars with American Car & Fdy. Co.; Louisville & Nashville, 1200 gondola cars from Pressed Steel Car Co., 750 automobile cars and 250 gondola cars from Mt. Vernon Car Mfg. Co., 300 box cars from Pullman Car & Mfg. Corpn.; Missouri Pacific, 1000 automobile cars from Mt. Vernon Car Mfg. Co., 20 air dump cars from Western Wheeled Scraper Co. and 60 cabooses from American Car & Fdy. Co.; New York Central, 100 gondola cars from company shops; Pacific Fruit Express, 600 underframes from Pacific Car & Fdy. Co.; Richardson Refining Co., Fort Worth, 200 tank cars from General American Tank Car Corpn.; Seaboard Air Line, 200 hopper cars from Richmond Car Works; United Fruit Co., 50 cane cars from Magor Car Corpn.; Virginian Railway, 500 hopper cars from Virginia Bridge & Iron Co.; Wabash, 35 single sheathed automobile cars from American Car & Fdy. Co.; Youngstown Sheet & Tube Co., 17 air dump cars from Koppel Industrial Car & Equipment Co.



SKF Journal Bearings Used in the United States and Canada

Type of Equipment	No. Trucks in Service
Passenger Coach	208
Passenger Coach	84
Passenger Coach	130
Passenger Coach	2
Combined Pass. & Baggage	36
Baggage Car	2
Cafe Coaches	16
Diners	52
Diners	4
Diners	2
Diners	6
Multiple Unit Cars	56
Multiple Unit Cars & Trailers	12
Motor Rail Cars & Trailers	44
Motor Rail Cars & Trailers	6
Business Car	2
Diesel Electric	
Articulated and	16
Non-Articulated Units	8
Gas-Electric Cars	4
Gas-Electric Cars	2
Gas-Electric Cars	2
Gas-Electric Cars	8
Gas-Electric Cars	2
Gas-Electric Cars Trailers	
Gas-Electric Cars Trailers	1
Engine Truck	5
Pacific Type Locomotive	
Pacific Type Locomotive	
Total 710	

SKF Journal Bearings used in Foreign Countries

NUMBER OF BOXES

Country	Passenger Cars	Freight Cars	Locomotive Tenders	Ore Cars	Dynameter Cars
Austria	24		16	4	
Australia					9
Czecho-Slovakia	824	139			
Denmark	2044				
Egypt	10				
England	155	32			
Finland	148				
France	1078	202			
Germany	9564				
Greece	50	4			
Hungary	537				
Italy	80	4			
Japan	52				
Mexico	12				
Norway	60				6054
Peru	32	30			
Sweden	3757				80
Switzerland	34				
Spain	192				
Bohemia	16				
Portugal	16				

Grand Total 25,258—correct to July 1928

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The Locomotive in the Laundry and the Shops

By Hal White

Every Inch of the Running Gear Is Subjected to a Bath of Hot Water and Distillate Shot Through a Hose at 125 Pounds Pressure.

A MAN contemplates a transcontinental rail journey—a little jaunt of 3000 miles or so. He wires his friend in the distant city that he will arrive on a certain day, at a certain hour and minute. If he were disposed to be slangily wordy at so much per word he might truthfully add:

"And I don't mean **maybe!**"

For it is a thousand-to-one shot that the long string of Pullmans comprising his train will come smoothly to a stop in the station at his destination at exactly the minute when the railroad company said it would.

As he follows a red cap toward the gates he probably will pass the locomotive. And, if he be a man alive to the beautiful efficiency of machinery, he will thrill to the warm odor of oil and steam in his nostrils, the vibrant hum of power that emanates from this 200-ton colossus of the rails.

The iron horse! That breed has grown enormously in size, speed and strength since the day when the first of its kind lumbered uncertainly into man's astonished view. But it has never outgrown the need for efficient care and stabling. On the contrary, this need has grown steadily with the increasing demands made on the huge railroad pacemakers.

Behind the fast schedule, vital to its successful operation, stands the enginehouse. Take it away, deny the iron horse his daily care, and straightway his eager snorting would be heard no more in the land.

The enginehouse, call it the roundhouse, if you wish, is the invariable destination of every locomotive in from a run. From the busy little switch engine to the giant of the mountain division, they all go there, their need for attention dependent on the nature of their work, the length of their runs, and the total time they have been in service.

The Union Pacific enginehouse at Los Angeles is typical of the efficiency of modern enginehouse methods. It has twenty tracks, and some fifty locomotives are handled in and out daily.

Just as a motorist's first care for his machine is gasoline, oil and water, so does the enginehouse attend first to the items of oil, water and sand. All the engines of this road, on this division, are oil burners.

The motorist might well take a leaf from enginehouse practice as regards the matter of cleaning. The enginehouse considers that an efficient engine must be a clean engine, and every locomotive that comes in goes to the laundry pit. The process is extremely thorough. Every inch of the running gear is subjected to a bath of hot water and distillate shot through a hose at 125 pounds pressure. While this is going on, the entire machinery is being looked over by an inspector, who makes a work report of every item needing attention. Then the locomotive goes to the turntable, and is shunted into the enginehouse.

Boiler washing is one of the most vital operations in the efficient functioning of a locomotive, and every one of the 20 tracks in the enginehouse is equipped to do this work. The process of washing boilers used to require five or six hours. Now it can be done in an hour, if necessity demands, with two hours as the average time required.

One of the big fellows comes

The Shop Engine Is the Most Useful Mobile Power in the Whole Plant, Pushing, Pulling and Bunting Things Wherever Needed.

nosing into the building under his own steam, is immediately connected to the outlet pipes and all the blowoff lines opened. The boiler steam and water, at 200 pounds pressure and 387 degrees temperature, is carried through the lines to tanks in a separate building, where the steam is used to heat clean water and the boiler water is filtered.

As soon as the boiler is emptied, with no waiting for the plates to cool, the filtered boiler water, at a high temperature, is sent through the boiler under pressure, washing it thoroughly. Then the clean water, superheated by the engine's steam, is shot through, completing the cleaning process.

Passenger and freight engines have their boilers washed after every run, switch engines after every 20 shifts. In this particular shop, about 15 engines get a boiler washing daily.

Flues are cleaned while the locomotive is in operation. Once upon a time the fireman of a steam engine had a nasty, sweaty, strenuous job on his hands, cleaning flues with a wire brush on the end of a rod. On some machinery this is still necessary, but not on the modern locomotive. When the engine is working under heavy draft, sand is turned through the flues, scouring out the soot and sending it out through the stack.

One of the worst things that can happen to a locomotive is a broken flue. One of the reasons for the regular and thorough cleaning of boilers to prevent, or delay, just that very thing. But flues have a way of eating through in spite of everything.

C. M. Chester, enginehouse foreman, showed me some that had been removed. "Notice," he said, "how they pit in spots when most of the metal is perfectly sound. And when one of those spots breaks through, the engine quits—right now!"

But flues don't often get a chance to burst. They are replaced before that can happen. The removed flues are not thrown away. If the weak spots in them are near the ends, they can be cut off and the flues used in shorter boilers. Or short sections can be welded together.

There is slight chance of an engine going out on the road with any defect or weakness. The machinists and boilermakers who work on it in the enginehouse have the work reports of both the engineer and the inspector to go by. When a specific repair is completed, the man making it signs his name after that item on the work report.

"And," said Mr. Chester, "if anything then goes wrong with that part while the locomotive is in operation we look up the name on the work report, and do what may be necessary to prevent a reoccurrence."

Considering the fact that failure of a locomotive part might endanger hundreds of lives, and would almost certainly tie up schedules, cripple the operation of valuable rolling stock and seriously inconvenience users of the road, one recognizes the necessity of extreme precaution. The men of the Union Pacific enginehouse in Los Angeles are very proud of the fact that the 86 engines serviced here made a record recently of one million miles without engine failure.

No; there must be no mistakes, no slips, no failures here in the enginehouse. They are too costly to be tolerated. And there must be no relaxing of the eternal vigilance which insures that weakness of a working part will be detected before it can do harm. That means inspection after inspection, throughout the life of an engine. Besides the daily inspection and report of both engineer and inspector there are 12 major inspec-

One of the Union Pacific's Big Power Plants in Service.

tions yearly of each locomotive; seven monthly, four quarterly and one annual.

Every thirty days the safety of the boilers is proved by giving every bolt the hammer test while the boiler is under 200 pounds pressure from a water line. Driving rods and other moving parts are tested frequently for incipient cracks by whitewashing them. When the whitewash dries it will reveal even the tiniest crack. There have been, in the history of railroading, failures of the driving rod, when the engine was on the road, traveling at high speed. Sometimes this caused nothing more than delay. In other instances the madly whipping steel derailed the train before the brakes could halt it.

Every five years a test is made, more exhaustive than all the others put together. The jacket is removed and the boiler subjected to a hydrostatic pressure 25 per cent above the working pressure. Every bolt and joint and valve and cam is gone over. No weakness, however small, can possibly get by that inspection and overhaul.

The enginehouse is a place of noise and clamor, noise with a purpose, efficient noise. Hammers ring, pumps throb smoothly, air brake mechanisms hiss and scream, wheels grind, driving rods clank, the roar of steam from pop valves and blowers resounds among the steel rafters. Pop valves do not open often, for over-pressure is waste. But blowers are used frequently, with steam from the enginehouse steam line, to create a draft of cool air through fireboxes in which men are working.

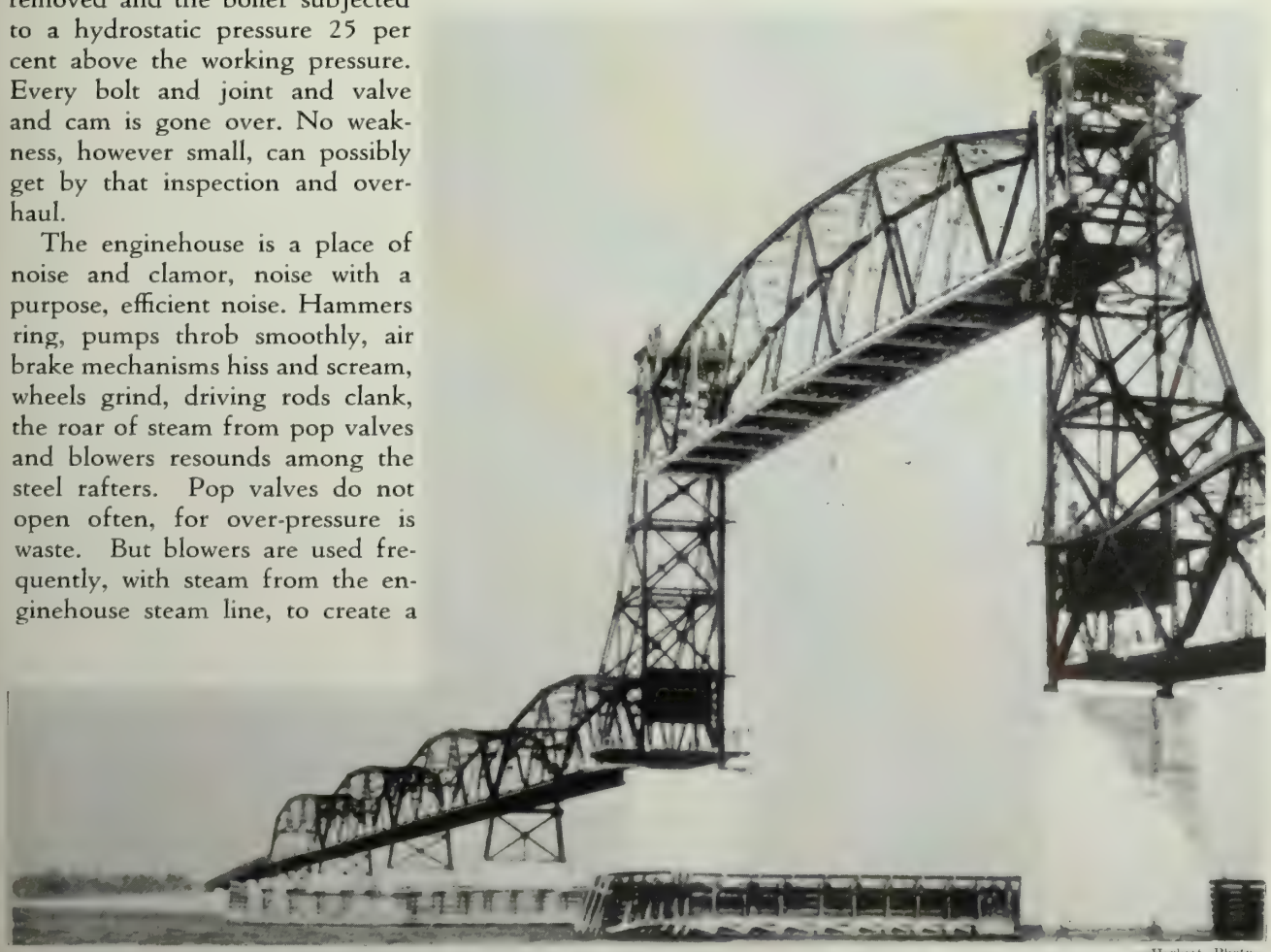
The enginehouse is truly the cave of the giants. In it, man is dwarfed by these monsters of his own creation. They stand in a row, steel-fronted titans that loom to the roof. Some are silent, some snore gently.

Minus steam, the life-giving element, they are so much inert metal, incapable of independent movement. But here is one who moves about in short, sure spurts of energy, the shop engine, without whose services the enginehouse would find itself in difficulties.

The shop engine is a powerful little locomotive. He pushes, pulls and bunts. Two hundred tons of machinery with no steam of its own would be a tough problem without the shop engine to put his blunt nose against the monster and push him a foot, a rod, or a quarter of a mile.

Alexander James drives the shop engine. James is a unique figure about the enginehouse. He is a Mission Indian, a graduate of Carlyle College, and was once well known in baseball circles. Now he is a hostler, and a very efficient man at the throttle.

Here is a locomotive soon to go out for the long, swift trek across the miles. Ready to the last detail. Cleaned, oiled, inspected, water in the boiler, some 5000 gallons of oil in the tanks, plenty of sand in the sandbox. In the cab, the needle of the steam gauge shows 200 pounds. Air brakes and pumps are working smoothly. Here is tremendous power held in leash, ready at the touch of a hand to serve swiftly and efficiently.



—Herbert Photo.

This Is the Colossal Lift Span of the New James River Bridge at Newport-News, Dedicated Last Month. This Span Is 400 Feet Long. It is Shown Raised 147 Feet Above the Water.

At the Turn of the Year

By Charles M. Schwab

WE HAVE reached in this country an amazing degree of general prosperity. American business on the whole no longer faces an uphill climb. The problem today i. an entirely new one. It is what to do to make prosperity permanent. No one, of course, has any patent rights to continuing business success. But I venture to suggest a few fundamental considerations which all of us may find helpful to keep in mind. These ten rules seem to me to hold the key to lasting prosperity.

1. Pay labor the highest possible wages. Prosperity is intimately related to a liberal wage scale.
2. Treat labor as a business partner. Successful industry depends more on human relations than upon the organization of money and machines.
3. Conduct business in the full light of day. Public confidence and public suspicion may be separated only by a door.
4. Remember that the law of supply and demand is inexorable. And it would also be well to remember that there is no necessity for producing an excess.
5. Live and help live. Even prosperous industries cannot afford to have the backward industries too far behind the procession—prosperity to be permanent must be equally distributed.
6. Welcome new ideas. To establish permanent institutions we must always be prepared for change.
7. Never be satisfied that what has been achieved is sufficient. Smugness and complacency do not promote progress.
8. Operate business on the most economical basis. Price-cutting, over-expansion, uneconomical methods of distribution are just as harmful to business and to the public as price-fixing, monopolies and rebates.
9. Look ahead and think ahead. It is easier to avoid depressions than it is to cure them.
10. Smile, be cheerful, and work upon the basis that the fundamental purpose of business is to promote the happiness of human beings.

This Really is the Largest

The largest steam locomotive in the world, which measures nearly half the length of an ordinary city block and three times the length of a standard freight car, has been constructed for the Northern Pacific Railway. This big locomotive, 125 feet long, was shipped recently by the American Locomotive Co. from

Charles M. Schwab

its plant at Schenectady, N. Y. It is experimental and is of the four-cylinder simple Mallet type. It is expected to arrive at St. Paul, the headquarters of the Northern Pacific Railway, between January 15 and 20.

The enormous proportions of this locomotive, which will ride the rails on 34 wheels, including 12 on the tender, were conceived by its designers and builders with a view to burning semi-bituminous coal, of comparatively low heating value, which is obtained from an open pit mine in the Rosebud coal field in southeastern Montana. This mine is operated by the Northern Pacific. Other features of this super-locomotive are:

In working order, with coal and water, it weighs 1,116,000 pounds.

Its height from the top of the rail is 16 feet 4 inches.

It has a normal tractive power of 140,000 pounds and a total tractive power of 153,400 pounds, including the trailer type booster, with which the engine is equipped.

The firebox, which is built to provide the greatest heating surface for burning the semi-bituminous coal, is equipped with five thermic syphons, three of which are in the firebox and two in the combustion chamber; the firebox, including the combustion chamber, is 28 feet 6 inches long by 9 feet 6 inches wide; the grate is 19 feet 2 inches long by 9 feet 6 inches wide, making a total of 182 square feet of grate area.

It has a mechanical stoker, which is of special design and is capable of crushing, delivering and distributing to the firebox hourly a maximum of 45,000 pounds or 22½ tons of coal.

Its tender has a capacity of 22,000 gallons of water and 27 tons of coal.

Water is supplied from the tender to the feed water heater and thence to the boiler by two centrifugal pumps. The engine is equipped with all of the most modern devices for efficient and safe operation, including automatic train stop.

The use of superheated steam at 250 pounds boiler pressure in four cylinders 26″ in diameter by 32″ stroke, distributed by a well designed Walschaert valve gear employing the principle of limited cut-off, and the use of auxiliary starting ports, with large capacity feed water heaters, assures the economical use of steam. The use of superheated steam is also extended to the following auxiliaries; stoker engine and stoker jets, headlight dynamo, booster, blower, air pump and steam whistle.

The big locomotive will be placed in regular freight service on the Northern Pacific between Glendive, Mont. and Mandan, N. D. The territory over which it will operate is of undulating profile, with controlling grades of 1 per cent so separated over the territory that it is impracticable to establish helper or pusher districts. Until the present it has been necessary to handle in two trains the tonnage carried in one train both west of Glendive and east of Mandan. This powerful new locomotive has capacity to pull between Glendive and Mandan in one train the same tonnage that is handled east and west of this 216-mile stretch where it will be in service.

The railroads are the principal medium of distribution for the products of agriculture, mines and forests to consuming and manufacturing centers, and likewise of manufactured products to points of sale.

Editorial Comment

Editorial of the New Year

NEW YEAR'S is a time for taking stock; we say this every year, but that's just what it is. If we are the right kind of men we give a thought or two, or at least we should, to just how well we have lived up to the highest ideals of citizenship. Where have we fallen short? What can we do in the next twelve months to make up for the failure? Seems a bit solemn and stodgy, no doubt, but this is precisely what should be our frame of mind at the end of the year. Indeed, if we don't take this one occasion to look over the goods on our shelves we are falling far short of righteous citizenship. There is only one possible source of relief, and this is that the failures and all the unhappiness they caused are behind us, and we may take a fresh start. If we are blessed with health, and friends who believe in us despite our failures, nothing else matters very much and nothing can dismay.

Railroads are citizens in the largest and best sense, but in some respects it is a classification not calling for applause. As a business man, a capitalist, or one of the self-sacrificing laborers in God's vineyard seeking membership in the Ancient Order of Home Owners, you may believe the government soaks you good and plenty with taxes, and you wish you were back in the care-free ranks of the renters. You ought to get down on your marrowbones tonight and thank Heaven you don't own a railroad. It's bad enough to have a radio. You can shut it off occasionally, which some persons, somewhere, are said to do once in a while, or you can sell it to a neighbor when he's not in very good condition; but you can't shut off your railroad, or the taxes it has to pay. Railroads pay more than a million dollars a day in support of government, more taxes in one hour than the average man can earn in ten years. Remember this blessing vouchsafed you, and join lustily in singing the old hymn, "Praise God From Whom All Blessings Flow."

It's a good idea to reflect over these concessions at New Year's. There are others. Your business has been so successful, perhaps, that you decide to open another branch. You can do it without consulting anyone except, perhaps, your banker, if you have one. He's a jovial chap, this banker—if you meet him at a dinner or on the golf course. He lends money freely provided you put up security worth several times the amount you get. This is called an accommodation—by the banker. Anyway, you build your branch and start the new business; you charge all you can get for your goods, fixing the prices so the branch will pay its overhead and leave a dinky little ten or twenty per cent for you and your accomplices.

A railroad can't build a branch until it has consulted commissions, state and federal, a group of aldermen at the terminal suddenly solicitous about the people's rights, and perhaps a committee from the commercial club with plans for a station. The commissions then fix the prices the railroad shall charge. During the bad, rainy weather several passengers use the trains. Three rousing cheers for the railroads—in bad weather. Whenever you think of a railroad, think of an airplane. You can't see what holds it up, but it's held up just the same.

Indeed, the more you think about New Year's Day the more it resembles Thanksgiving. You have so many really good reasons for being grateful; and gratitude, you know, is an expression of hope for favors still to come. You may make resolutions far into the night, and if you break one nothing very serious will happen. But if congress makes just one resolution—something like the Hoch-Smith atrocity, for instance, and someone ignores it, well, there's a row that is simply dreadful.

New Year's is a fine time to resolve that you have a very grave responsibility toward these railroads, and that in 1929 you won't neglect it. The men you help to elect soak the railroads to pay for your school house, and you smile over it. You don't know it but the fact is, nevertheless, that every time you pay the railroads a dollar for freight or passenger charges you are paying six cents for taxes. Tax money, you know doesn't come out of the air. Make a resolution that you'll give this some attention this year. Make another that you will do what you can to discourage reckless extravagance in local government expenditures.

Write out another resolution that you will try to be railroad-minded in 1929. You are becoming air-minded fast enough. Being railroad-minded means simply being sensible of your own good interests, fair-minded, ready to recognize the national good these roads are doing every day and every night. Remember the railroads aren't owned by bankers; they are the property of men and women, and the only difference between those men and women and you and your friends lies in the fact that you make your own prices every day, evade all the taxes you dare, and that the railroads, being too big to hide very much property from the nosey assessor, pay more to your government's support than they pay in dividends to their owners.

The Germans have long had a beautiful custom observed at the end of the year. No matter what

the past twelve months have brought in troubles between them they get together at New Year's and forget the past. If you have had some row with a railroad in days gone by try to resolve that you'll forget it this year. Try to be railroad-minded. It will help your business. Try to remember that railroads simply cannot go on paying higher and higher taxes and wages unless rates are increased. The first thing to do is to cut down taxes. You have this power in your own hands.

The Longest American Tunnel Finished

When Ralph Budd, president of the Great Northern Railway, officially establishes service through the Cascade tunnel, near Seattle, January 12, his company will have completed one of the really great railroading achievements of the present age. Sharing with the Great Northern in this accomplishment are the engineering factors and those industries which helped to develop and construct the equipment and perform the work forming a vital part of the whole program of improvement.

It is indeed an achievement to have completed this eight mile tunnel, the longest on the American continent, in the unprecedentedly short time of three years. Actual operations were started on December 28, 1925 and on October 20, 1928 the first continuous hole was completed.

A. Guthrie & Co. a St. Paul firm, builders of the tunnel, compare the speed of construction of the Cascade tunnel with that of the six-mile Moffatt tunnel in Colorado, which required nearly five years to complete, while the four European tunnels, three of which are only slightly longer than the Cascade tunnel, required from seven to fourteen years to build. Of these tunnels the Cascade is the only one to be concrete lined. In the construction of this tunnel it was necessary to remove 1,000,000 cubic yards of rock by blasting and drilling, and 250,000 cubic yards of cement was poured in three years.

The new tunnel eliminates almost six complete circles of curved track, many miles of steep grade and expensively maintained snow sheds, with a marked shortening of track miles.

Coincident with the drilling of the Cascade tunnel the Great Northern undertook the electrification of the steep slopes of the Cascade mountains which lead to both portals of the tunnel. This entire improvement program amounted to approximately $30,000,000. Of this amount the tunnel project amounted to more than $14,000,000, while the electrification of the 73 route miles cost $6,000,000, new equipment $5,000,000 and the construction of the Chumstick cut-off $5,000,000.

In the Great Northern electrification the Westinghouse Electric & Mfg. Co. has played an important part, having supplied ten powerful locomotive power units, the last two of which will be delivered this month primary requisites of the distribution system, including transformers and electrical switching equipment, and important features of the overhead contact system. The electric locomotives, the first of which were placed in service in the spring of 1927 between Skykomish and Cascade, through the original 2¾ mile Cascade tunnel, were of a type new and untried in mountain service. After months of successful operation, pulling heavy passenger trains and heavier freight trains up this heavy grade, with a very material decrease in running time over this section, officials of the Great Northern authorized complete electrification of this heavy grade section of track extending 50 miles eastward from the east portal of the new tunnel to the Columbia River at Wenatchee. The knowledge and experience gained in the electrification on the west slope was taken advantage of to the extent that complete electrification from Wenatchee through the new Cascade tunnel and down to Skykomish, 73 miles, was ready for operation with the completion of the eight mile tunnel.

The celebration in the official opening of the tunnel will be participated in by national celebrities including a large number of the leading representatives of congress, railroad officials from the United States and elsewhere, officials of firms interested in the building of the tunnel, and others. One feature of the program will be to send the first official train through the new tunnel. This train will be drawn by a Baldwin-Westinghouse locomotive and will carry the special inspection party. The ceremonies at Scenic, at the mouth of the tunnel, presided over by Operating Vice President C. O. Jenks, and those at New York City, presided over by President Ralph Budd will be broadcast over the national hook-up of the National Broadcasting Co.

One of the Moynihans

Jerry Moynihan completed, last fall, forty-seven years of service as superintendent of the Railway Transfer Company of Minneapolis, a subsidiary of the Minneapolis & St. Louis Railroad Company. He was, and is, a unique character: a typical Irishman, loyal to the core, whose only thought throughout his entire period of service was his railroad and what he could do for it. The matter of salary was to him of minor importance, the matter of giving good service was everything.

And so, while Jerry never achieved high position, yet the M. & St. L. believed that his service was worthy of commemoration, and as a tribute to him and to the character of service which he performed, a booklet was published. Indeed it should not be called a booklet. It is a real book of 45 pages, in board covers, attractively printed on good stock and well illustrated. Under the title, used at the head

of this editorial, is a sub-head, "A Record of Loyalty and Success Through Service."

When his time has come for Jerry Moynihan to "wrap the drapery of his couch about him, and lie down to pleasant dreams" he can leave behind him no finer tribute than this to be treasured by those who have come up with him through the years. Once more we find proof of the assurance voiced by thinkers many times that success does not, necessarily, mean money. To such a character as Moynihan this book is better than silver and gold. Here is a paragraph:

> Distinction has come to the Moynihans not because they have merely lived on and maintained uninterrupted connection with the pay-roll, but because they have delivered the goods at every stage of the run. Not one has ever held a white-collar job, and yet they are honored and acclaimed by railroaders whose rank runs the full gamut of the business from switchmen to general managers and presidents.

There are four of the Moynihans, John, Dan, Michael and Jerry. The book about Jerry carries a photograph of the four with Governor Moore of New Jersey. Jerry is past 70 now, with 58 years of strenuous railroading to his credit. Fifty-eight years of loyalty and service and success. His face is not so smooth as it was once, but there are no wrinkles in his heart.

Don't Let Yourself Grow Old

No one ever regarded the first of January with indifference. But, as in the case of the Fourth of July, men approach the day in different moods. When you were young your idea of self-expression consisted, doubtless, in making as much noise as possible to indicate joy over the passing of time or, perhaps, to emphasize the quality of your patriotism. You may have changed your program now, as your hair turns gray, but others are doing just as you did in the days of your youth, howling and shooting, yelling and dancing, and giving other evidences of mental vacuity.

All of which is extremely disturbing to those who have lived to realize that New Year's is a day worthy of much thoughtful consideration. You have learned, for one thing, that those who make the most noise on the Fourth of July have, perhaps, the least knowledge of what the day really means. What you have overlooked, though, is the fact that the real force behind all the harmless racket on New Year's Eve is a force that wears out too soon—youth. You have forgotten the resolutions you made at New Year's in the springtime of life, and broke within a week. You have overlooked the fact that once, long ago, you made as much of a nuisance of yourself as your boy is now doing, and delighted in the assurance that no policeman would interfere. Don't let yourself grow old.

Worse Than the Whistle Argument

The question, which railroad had the first sleeping car, is still unanswered, but claims continue to arrive. First the Illinois Central showed conclusively that it had run such cars several years before the Pullman invention appeared. Now, according to information from the East, the Erie Railroad had Diamond cars, so called because their windows were diamond-shaped, in 1843, about 25 years before anyone had heard the honored names of Wagner or Pullman. These cars were built by John Stephenson after models made by Thomas Brown of the Stephenson works, then in Harlem.

Instead of bed clothes and pillows there were cushions covered with black hair cloth. These were loose from the frames of the seat and could be so arranged as to make a bed. The cars were 11 feet wide and contained six seats on each side, arranged back to back.

Where Higher Rates Were Successful

The traveling public is usually looking for bargains. Down in Oklahoma an electric line, the Northeast Oklahoma Railroad Co., has discarded precedents and established a straight ten cent fare with rather astonishing results. The scheme might scarcely be adaptable to interurban lines more than 25 miles long but it does offer traffic possibilities for fairly large systems operating for shorter distances out of large cities.

In the Oklahoma case passenger traffic was declining rapidly. Something had to be done. Using June, 1928, the lowest month in both passengers and revenue, the results are shown:

	Passengers	Revenue
July increase over June	57.57 per cent	9.005 per cent
August increase over June	90.05	23.43
September increase over June	97.86	34.37

The Northeast Oklahoma operates in the lead and zinc districts of northeastern Oklahoma and southwestern Kansas. This territory, taken in connection with southwestern Missouri is densely populated, producing more than 50 per cent of the world's supply of lead and zinc.

Before starting the new fare system June 30, the company gave everyone an opportunity to ride free and thousands availed themselves of the privilege.

The Denver & Rio Grande Western will be 57 years old this year. A startling contrast in the cost of construction is shown by the fact that its first 80 miles, completed in 1871, cost only $1,000,000, or $12,500 a mile, while the present cost of building one mile of main track is from $40,000 to $75,000.

Among the Men Who Do the Work

SOMETIMES in telling a story in motion pictures the directors use what is called a "flash-back." In this kind of picture you see a character in one of the world's finest hotels, let us suppose, eating a porterhouse steak, if there is such a thing, talking to beautiful women; and then you get the flashback. It shows the character as a bricklayer or an editor, perhaps, struggling for a living and having a hard time of it. He wins his high place in the world, however—the bricklayer—and you see another flashback to the dining-room and the meat. Well, this yarn we are about to tell you, children, is a flashback, a really, honest-to-goodness true one, too.

If you have a radio—shucks, that's no way to start a story, is it? Nearly every evening for at least two years, when you have turned on your radio so strong that no one else in the block could think Christian thoughts, you must have been thrilled by a lyric tenor, sometimes from WJZ, New York, sometimes from KNX, Hollywood. You have said, perhaps, that if all the singers could warble like that one you'd be willing to sit up all night and listen, and so would the neighbors. It takes a pretty good voice to make you feel that way, doesn't it? Drink to Me Only With Thine Eyes, or Mother Machree and such things, floating through the ether, or whatever it is.

In this picture the hero, in evening clothes, has dismissed the waiter as if he were a garageman, and has begun to tell the girl at his side the story of his life. It must be this because she looks as if she were thinking of something else. And at this moment we get the famous flashback under the enticing title,

A NIGHT IN JUNE

June, 1926, it was. This would be about two and a half years ago, if we know our engineering. The Northern Pacific's North Coast Limited, what the newspaper chaps call a "crack" train, has just stopped at Miles City, because there is a rule requiring it. It has done this every night for years, but this is the night for us because something is going to happen. For one thing, in order to maintain the continuity the engineer, denouncing everyone (particularly the dispatcher) and the fireman have stepped down from the cab, one on each side, of course, to do the various mysterious things that engineers and firemen are forever doing on such occasions, unscrewing and screwing up hundreds of grease and oil cups here and there and beyond. Suddenly, upon the evening air a

Howard Melaney.

song is heard; and remember, please, this is a talkie:

Within the garden of my heart
A little flower grew;
A blossom fair, you planted there,
It was my love for you.

A group of New Yorkers, walking the platform to stretch their cramping legs, stop as if someone had just told them the Eighteenth Amendment had been repealed. The song, however, goes on and they listen. Then one of them hunts up the conductor, who is struggling with a sandwich in the lunch-room, and asks the singer's name. Knowing this is to be a talkie, the conductor whispers in the man's ear, which seems to us to be the proper place. Then the New York impresario—for such, indeed, is he—expresses intense astonishment, whether over the information or the disappearance of the sandwich, we do not know, and says, loud enough for the Mike to get it, "That guy will be heard, some day, in worthy places," which we think is a dirty crack at Miles City. There is another flashback—isn't this terrible? A title is shown,

SCHUMANN-HEINK SINGS AT BILLINGS

This looks as if it were to be a comedy, but we determine to stick. A mighty fine looking chap sings something about the Stars and Stripes, this being a Fourth of July entertainment, and just as he resumes his neglected seat, up walks Mme. Schumann-Heink, inviting him to sing a prelude for her. Doubtless he knew what she meant because he up and did it and everyone applauded, including the ushers. The title writer slipped in a silly line or two here about success, but let that go. It is enough to say, children, that this blow-out at Billings was where the Northern Pacific lost a good fireman, and the division gained a legend that will never die. The Bad Lands of Montana, and the coyotes and wolves that used to roll over in glee when he sang in the night, were to hear his voice no more, for it had gone to radio land, as the announcers love to call it.

All of which explains how it is that when you turn on your rioter every evening, you are very likely to hear Howard Melaney's tenor from some far distant place. Good songs he sings, too, in a way to make you forget debts and relatives and what not. Pretty often, especially if he's in the West, he sings the song that brought him fame upon a night in June, a beautiful song about a garden. Not very classical, but a song that in some strange way makes you willing to do good things for people you never met before. And once you've heard it, you'll never forget:

Within the garden of my heart
A little flower grew.

The health, happiness, prosperity and well being of the United States is more directly dependent upon adequate, efficient and dependable railroad transportation service than any other single factor.

Equipment Buying May Improve

A Situation With A Reason

By E. B. Leigh

President, Chicago Railway Equipment Company

To give a statement regarding the operations of our company for the year just closing, and particularly as to the outlook for 1929, is rather difficult in the light of the peculiar conditions which have prevailed throughout the past four years.

In common with those engaged in the railway supply field, especially those having to do with cars and locomotives, 1928 has been a poor year, the last, it is to be hoped, of the sequence mentioned.

There are various well known important factors which have led to the reduced purchases of the railroads within the period mentioned, and particularly and notably in their rolling stock purchases. Incidentally, these have led to the conclusion that "car purchases" no longer, in and of themselves, reflect accurately, as they have for many years past, "general railway buying" and the part it has played as a sound and reliable barometer of "general business prosperity." This has been due chiefly to the great development of the building and automotive industries within the period, and of their enlarged consumption of steel and iron which has taken up the slack occasioned by the restricted railway equipment buying.

Following the heavy car purchases of 1923 and 1924, which gave the railroads ample equipment, there has been a steady and continuing decline in car buying; this, too, coincidental with the ably conceived and executed program of highly improved service by the railroads generally, which has enabled them, for the time being, to meet their service requirements without substantial increases of car and locomotive equipment. During the same period, however, they have made substantial purchases in other directions, and have effected valuable economies, notably a highly reduced current inventory.

While it may be a question whether the railroads have not already reached their maximum of efficiency in the utilization of equipment and in materially reduced inventory, there are indications that a substantial improvement in rolling stock buying may reasonably be expected during the forthcoming year.

New Coach for Detroit

The de luxe motor coach, chosen by the Detroit department of street railways for new transportation lines to parallel its street car routes and operate in the main traffic lanes of the city, has gone into service. Orders have been placed with Dodge Brothers division of the Chrysler Corpn. for 120 Graham Brothers parlor coaches for the new lines, and deliveries have begun. These will be an addition to the street department's present fleet of "Grahams" which have already operated for more than 24,500,000 miles on the streets of Detroit.

The new coach seats 15 passengers, exclusive of the driver, in individual deep leather, air cushion, wicker chairs on spring bases. There are four seats at the rear of the bus, one over each rear set of wheels, facing in, six arranged in pairs on the left and three single seats on the right. An electric fan opposite the door, and ventilators in cowl and roof insure a steady flow of fresh air. The heating is taken care of by the fan blower system, the air being brought in, heated and forced through the coach. A sloping one-piece windshield has "V" type ventilating wings at each side as well.

Lockheed hydraulic four-wheel internal expanding brakes with a hand brake which operates on the propeller shaft, an emergency door at the rear of the coach, and a non-skid entrance step are included in the safety features. A suggestion of the Pullman car is given by the mirrors set in the window posts.

Powerful six-cylinder motors with four-speed transmission, particularly adapted to traffic conditions demanding quick acceleration and speed, provide the power, while the coach has the protection of the braking facilities in an automobile. Freedom from driving strain is assured by the nut-and-lever type steering gear, the varying ratio giving rapid action in turning and easy control on straight away running. The interiors are trimmed with leather and all windows are plate glass with roller anti-rattlers inside and out. Stops are signalled by a cord attached to a buzzer in place of the customary push button.

The bus is 20 feet 6 inches long and 6 feet 5 inches wide, equipped with four hydraulic shock absorbers and balloon tires with dual rear wheels. The oak flooring laid crosswise is covered with linoleum and six candlepower flush type dome lights give the illumination.

A distinctive color combination is used by the street railways department, distinguishing the de luxe bus from others operated in Detroit. Around the base of the body is a skirt of black, then a wide strip of maroon topped by a red band set off by black and gold stripes and a beige top. The wheels are red surmounted by black fenders.

Every Man's Best Friend

A man's job is his best friend. It clothes and feeds his wife and children, pays the rent, and supplies them with the wherewithal to develop and become cultivated. The least a man can do in return is to love his job.

A man's job is grateful. It is like a garden that thrives on love. It will one day flower into fruit worth while for him and his to enjoy. If you ask any successful man the reason for his making good, he will tell you that first and foremost it is because he likes his work; indeed, he loves it.

His whole heart and soul is wrapped up in it. His whole physical and mental energies are focused on it. He walks his work, he talks his work; and that is the way every man worth his salt ought to be if he wants to make of his work what it should be, and make of himself what he wants to be.—*Senator Capper of Kansas.*

Selfishness is the only real atheism; aspiration, unselfishness the only real religion.—*Zangwill.*

They Are No Longer Street Car Men

Diversity of Transportation

By Lucius S. Storrs

Managing Director, American Elec. Ry. Assn.

THE PAST year has been one of steady, though not sensational, progress in the local transportation field and indications are that the end of 1929 will find further improvements in conditions.

Let me emphasize that term, "local transportation field." We who are designated as electric railway men no longer consider ourselves mere operators of electric cars. We are operating cars, motor coaches, and in some cities taxicabs also. Our national intention is to operate every kind of a vehicle required by local transportation service, hence it is a misnomer longer to call us, "street car men."

The electric railway industry of today is operating 75,000 electric cars, 10,000 buses and several thousand taxicabs in the United States. It is carrying on these combined services something in excess of 16 billion passengers a year. Three out of every four passengers who are using any kind of transportation in the street are riding vehicles operated by electric railway managements.

Rail cars and buses have pretty generally found their places in the local transportation scheme. It has been demonstrated anew during the last year that the rail car must remain the backbone of local transportation but that the bus has a very definite place in local common carrier service. It serves best as a supplement to the rail car. In small cities it frequently is possible to replace rail lines with buses and, so long as the problem does not become one of mass transportation, to discharge service obligations more economically than could be done with rail cars.

Leaders of the industry are urging all companies to establish complete coordination of all public transportation vehicles, for it is only by such unified operation that the maximum efficient use of the already congested street space can be obtained which will lead to more efficient service and more economical operation. Local transportation is one field in which competition seldom is helpful to the riding public. Usually it leads to price wars which eventually wreck service.

Particular attention is being paid to the small town and interurban

Lucius S. Storrs

service problems. Special committees of the association now are studying them. Traffic losses on such lines have been greater than on any other. Business is increasing in most urban centers. Increased traffic congestion is driving people back on the cars.

The average fare for the country is 8¼ cents, the highest in history. Wages have changed little during the year. There have been no serious labor disturbances. Traffic was off more during the early part of the year than at present, but it never has been off more than 3 per cent at any time since January 1, 1928.

Only two or three large properties are in receivership. One, the Chicago Surface Lines, presents the strange situation of being financially more prosperous than ever in its history, breaking all traffic records and giving service exceeded by no transit company in the world, but being in receivership because politicians cannot agree on the kind of a franchise it shall have.

An equitable adjustment of fares so as to establish a fair return on money invested and the energy expended without overcharging the rider is an outstanding problem. A special committee is working on this whole fare subject and scientific revision of the entire fare scheme is hoped for. Disabusing the public mind of the idea that five cents should be the universal fare has been accomplished.

No annual survey of the industry would be complete without reference to the fact that New York's transit situation still probably is the worst in the country. Persons who see the rattle-trap equipment which some of the Manhattan surface lines are compelled to use on account of inadequate fare, have no idea of the enormous progress that has been made throughout the United States during the last ten years in the improvement of service. If politicians continue to stand in the way of progress, the day of modern transport facilities will be indefinitely postponed.

The Face In the Mirror

Life's pretty much what we make it. It's only a looking glass, true, and reflects back shadow for shadow, the very image of you. The good deeds will always be smiling, the bad will look vicious and vile; the face you behold in the mirror is only yourself all the while. And the longer the shadow reflected, the deeper the impress will be. It shows for good or for evil as it sends back the features you see. You've only to take the world easy, mingle along with the good to be had, and the face you see in the mirror will always be happy and glad. —*Sunshine.*

Sir Henry W. Thornton.

Little Stories About Big Men

In years to come, when political economists record the history of the first half of the Twentieth Century, the name of Sir Henry Thornton, former general superintendent of the Long Island Railroad, will be large in the record, for the task in which he is now engaged is to determine for the future whether government control of an enormous railway system can be good business in any circumstances. And this is a mighty question.

For fifteen years "Hank" Thornton has given the old-timers in Logansport, Ind. plenty to talk about in the home town grocery store. Those who knew him as a boy still call him "Little Hen" although he has been "Hank" ever since he started in the line on the University of Pennsylvania football team. The home town boy who rises from draftsman to general superintendent of a railroad is bound to be a topic of conversation.

But when Lord Claud Hamilton, chairman of the board of directors of the Great Eastern Railway in England gave the British lion a slap in the face by declaring that he could not find a man in England big enough to straighten out that badly managed transit line, and then hired Thornton, an American, to do it the folks back in Logansport began to hold extra sessions in the evenings.

Later, when King George, in recognition of Hank's services in ferrying Tommy Atkins across the channel and up the Nile into Mesopotamia during the World War, made him a Knight of the Order of the British Empire, no one in Logansport went to bed before 10 p. m. He might now be a British subject, but he was still a home town boy to them and they were proud of him.

What Sir Henry Thornton, K. B. E. is doing in Canada today, where he is president of the state-owned Canadian National Railways, is not only the talk of Logansport, but of the rest of the country as well, and particularly Long Island where he formed many delightful friendships during the time he served as general superintendent of the Long Island Railroad.

Indiana has produced some notable poets, politicians and novelists, statesmen, but Sir Henry seems to be the one notable railway organizer from that nursery of great men. His job now is to discipline, tame and educate the Canadian National Railways, which is essentially and without dispute the most unwieldly, tender-tempered and delicately constituted transportation system in the world. And he is doing it.

Considerations of military expediency and the need of giving railway service to sparsely settled regions are the reasons why states of Continental Europe and the dominions of Australia maintain their roads in government hands. Canada, however, embarked upon the adventure of government ownership and operation for a more prosaic reason. The private corporations which controlled most of the roads now welded into the Canadian National (the Canadian Northern, the National Transcontinental, the Intercolonial and the Grand Trunk) were in bankruptcy. Private ownership had brought about a condition in which the very continuance of service was in jeopardy, and great sections of the dominion, settled under promises of continued railway service, were about to be shut off from the outside world. A condition confronted the dominion government before which theories were dumb. The government did the only thing possible short of repudiation and consequent ruin of national credit. It bought the defunct roads, mixed them together and announced the result as the Canadian National Railways.

But getting the right man to battle with this gigantic pachyderm, a railroad system with a yearly deficit of $72,000,000, was the problem that faced MacKenzie King, premier of Canada. He looked around and his gaze lighted on Sir Henry. Sir Henry accepted the job. It is said the reason that caused him to give up the management of the Great Eastern and go to Canada, was that, being a fighter, he wanted to tackle the biggest railroad problem the world had to offer. The problem is still there though in less aggravated form.

When Thornton went to Canada not only was the Canadian Pacific dominant, but its rival, the Canadian National, was a name and little more. At the time persons still spoke of the Canadian Northern, a flash in the pan, bankrupt and discredited. They spoke also of the Grand Trunk, in its day a great institution that had served three generations of Canadians, also bankrupt and discredited. The names of the Canadian Northern and the Grand Trunk have now passed out of use. The Canadian National Railways are definitely on the map. Not only are they on the map but they stand up not only in size but in reputation and service as a worthy rival of the recently dominant Canadian Pacific. In this lies an achievement which must be set down to the credit of Sir Henry Thornton in attempting to answer the question, "Has he made good?"

"Hank" Thornton's administration of the Canadian National Railways has been masterful and spectacular. It has been just the kind of an administration necessary to bring the system from chaos, disorganization and disrepute, to command the respect of the community and its rightful share of business. Some improvement in Canadian National business is due to public desire to use the "People's Road." Even opponents of public ownership are impelled to help reduce taxation by giving some of their business to the national enterprise. Sir Henry himself gives no encouragement to any such motive. "Our only appeal for patronage," he says, "is on the basis of service."

There has never been such railroad competition in Canada as has developed in Sir Henry's day. When he went to Canada, the Canadian Pacific had been for years synonymous with service. It still is; but it no longer has a monopoly of the field.

It is all "Hank" Thornton's doings. He preaches service all the time from one end of the road to the other. He has made service the slogan of the 100,000 employes of the system.

At the outset of his regime as head of the Canadian National, Thornton's disposition was to curtail competition between his system and the Canadian Pacific, but his great rival, confident in its position of dominance, assumed an attitude of indifference toward its weaker competitor. Forthwith, the American-born and American-trained president of the C. N. R. sprang into action. He cut several hours off the running time between Toronto and Winnipeg; unnecessary, perhaps, but he wanted the business. He put new ships on the Pacific; unnecessary, perhaps, but he had to have them to put his railroad on an even keel with his rival in competing for tourist passengers. He set special staffs of canvassers to work to interview shippers, and other staffs to see they got service. More staffs were organized to interview prospective passengers. Thornton established radio broadcasting stations. His road was the first to establish radio broadcasting stations of its own, and under Sir Henry's wide-awake direction was the first to install radio receiving sets in the club cars for the entertainment of passengers.

"Service, service, service" was the Thornton cry all along the line from Halifax to Prince Rupert and far up through the remote and lonely region of Hudson's Bay. Those who opposed public ownership shouted about extravagance, but Thornton ignored them. His job was to put the Canadian National on a paying basis.

Financially, the position of the road is improving. Despite large expenditures there have been substantial savings; 3000 men were laid off at one blow; unproductive expenses have been eliminated and there have been increased savings. The deficit of $72,000,000 in 1921, the year before Thornton took hold has been reduced to below $50,000,000. An operating deficit of $11,719,393 in 1921 was changed within two years to a surplus. Last year, 1927, that surplus was $43,225,000.

It is a mighty kingdom over which rules the native son of Logansport, the "Big Hank" of the University of Pennsylvania team of '93. It comprises 22,600 miles of track, 4,000 miles of which is in the United States. It comprises 100,000 miles of telegraph wires, an express company, a chain of hotels, fleets of steamers and car ferries and a chain of radio stations. The book value of the five systems that were merged into one is just under two billion dollars.

Sir Henry makes it clear that he is no protagonist of public ownership in the accepted sense. He recognizes the conditions that made it necessary in Canada and believes it can be made a success there. But there he stops. What he does insist is that public ownership of railroads in Canada has demonstrated that loyalty, enthusiasm and efficiency can be just as pronounced under public ownership as under private.

Politics plays no part in the management of "Hank" Thornton's road. It may be government-owned, but no employe owes his job to political patronage. At the outset Thornton made it clear that he would tolerate no political interference, and that if politics came in he would go out. Several times he has reiterated the declaration.

In Logansport, they say that "Little Hen" wanted to be a bishop—just why nobody knows. All of those who knew him in his early days attest to his humanity, his love of fair play and his unswerving willingness to help the other fellow. Just human—that spells everything in the world

regarding "Hank" Thornton. His outstanding characteristic is his loathing for liars. This tradition adheres among his associates of his early railroading days on the Pennsylvania and Long Island Railroads. He missed being a bishop, if that yarn is true, but he has come up as a preacher—a preacher of service, fair dealing, not for a moment forgetting his text, the thing he went to Canada to do, the question he must answer for future generations: Is government ownership of railroads wise, is it efficient, is it profitable, or is it just another dream gone wrong?

International Newsreel.

The Tablet Tells the Story. At the Left Is Orville Wright, With Senator Dingham of Connecticut Who Unveiled the Memorial at Kitty-Hawk, N. C., Last Month.

A Maker of Airplanes

The saving grace of humor, plenty of independence and originality: there you have Anthony H. G. Fokker, builder of airplanes that have crossed the North Pole and the oceans, and who, with the recent merger of his own company with several others, becomes technical advisor of the largest airplane manufacturing enterprise in the country.

There are men who dislike Anthony Fokker as sincerely as others like him. He can be brusque to the point of rudeness, and yet he can be delightfully amusing and interesting. It depends on whether Uncle Tony, as some of his friends call him, despite his youth, is pleased with the world and himself at that particular moment. And, frequently he is not pleased; he is much too strenuous to be content for very long.

No aviation meeting is dull if Fokker is on the program. His wit and devil-may-care attitude toward the problems would cause him to be looked upon as rather frivolous if his personal and technical achievements had not been so great. So people listen with respect to what he has to say regarding flying, and laugh at his idiosyncracies. He seldom approaches a subject without finding in it something amusing.

Fokker has built more than 8,000 planes and he has tested a large number of them himself, and with few crashes. The most serious of them was when he was testing Commander Byrd's plane. Floyd Bennett was badly hurt, but Fokker escaped without a scratch. In the early days before the war, when he was building monoplanes, he had many a narrow escape from injury. Speed is his hobby. Thrills appeal to this nervous, energetic man, who does what he pleases and builds planes the way he thinks they ought to be built, regardless of the opinions of others.

When he started to build his large wooden wings he was the target of considerable criticism. Some thought that a wing of wood, internally braced with wood and covered with a wood veneer, would not be strong enough to lift the loads that Fokker intended to put upon them. But he continued to build them, because, as he said, he could not find any one who would build him a metal wing of equal lightness and strength.

"I am not prejudiced against metal wings, absolutely not," Fokker told a group of engineers. "If I saw it was better to build metal wings, I should build metal wings; as long as I do not I do not build them. If I find that rubber wings are better, I shall build them of rubber."

He is the only man in the world who builds wings entirely of wood, and some designers say his wings are weird and aerodynamically inefficient. But they fly and fly well, and so far have proved their strength.

His attitude toward design is characteristic of himself. Of scientific mind, he scorns scientific investigation of his structures. He will have nothing to do with the wind tunnel tests, on which most of the aerodynamics of today is based, and

—Herbert Photo.

As the Wright Airplane Co.'s Plant at Dayton, O., Appeared in 1910; the First Plant to Make Heavier-Than-Air Machines.

nearly all of his work has been done without the aid of the wind tunnel.

The stubborn unconventionality of Fokker was shown by his introduction of the welded steel fuselage. There are few good planes now built that do not have welded fuselages of steel or duralumin and steel, but when Fokker first suggested them there were doubting heads shaken over the strength of welding. Fokker, who had always eschewed metal, taking to steel fuselages! The inconsistency of it would have been striking in any other man. He thought they would be good under his wooden wing, so he built them. And he proved himself to be right.

Fokker's stubborn independence probably is due to his Dutch ancestry. His father was a coffee planter. The son was born in Java, in the Dutch East Indies, where Fokker planes now fly about on government business. When his family moved back to Holland Fokker became interested in aviation, in the experiments of the Wright brothers, and of the French pioneers who followed quickly in the footsteps of the American inventors. So he built a plane, built it himself. It was a monoplane, as planes were likely to be in those days, and the boy sitting among a bunch of wires, flew the delicate thing around Holland until he had taught himself all the tricks. It was not much of an airplane, as airplanes go today, but it was fairly successful, and he won a competition held in Russia.

That decided Fokker's work in the world. He built other planes and designed one that seemed to have remarkable qualities. To those who have never forgotten that Fokker planes were the scourge of the allied front during the early part of the war, he tells how he tried to sell that plane to the English and how they turned him down. So did his own government. It is amazing how little actually was known about the qualities of airplanes in those days.

So Fokker went to Germany and started a school and factory and when the war broke out he built planes for Germany. They were remarkably successful, and at first climbed faster and maneuvered better than any of the allied planes. He nearly always succeeded in keeping abreast with the allied development, and often went ahead of it. Biplanes and triplanes were the type he built during this period. They were small, fast fighting machines.

One day at Washington Fokker had a number of army officers in the air in his three-motor plane. He had been flying on two engines instead of three, and had cut down to one to show that his plane would maintain altitude on a single motor. One of the officials aboard looked at his watch and suggested that he had an important engagement on the ground.

"All right," said Fokker. He cut the remaining engine and climbed out of the cockpit.

"What—what will happen?" exclaimed one man.

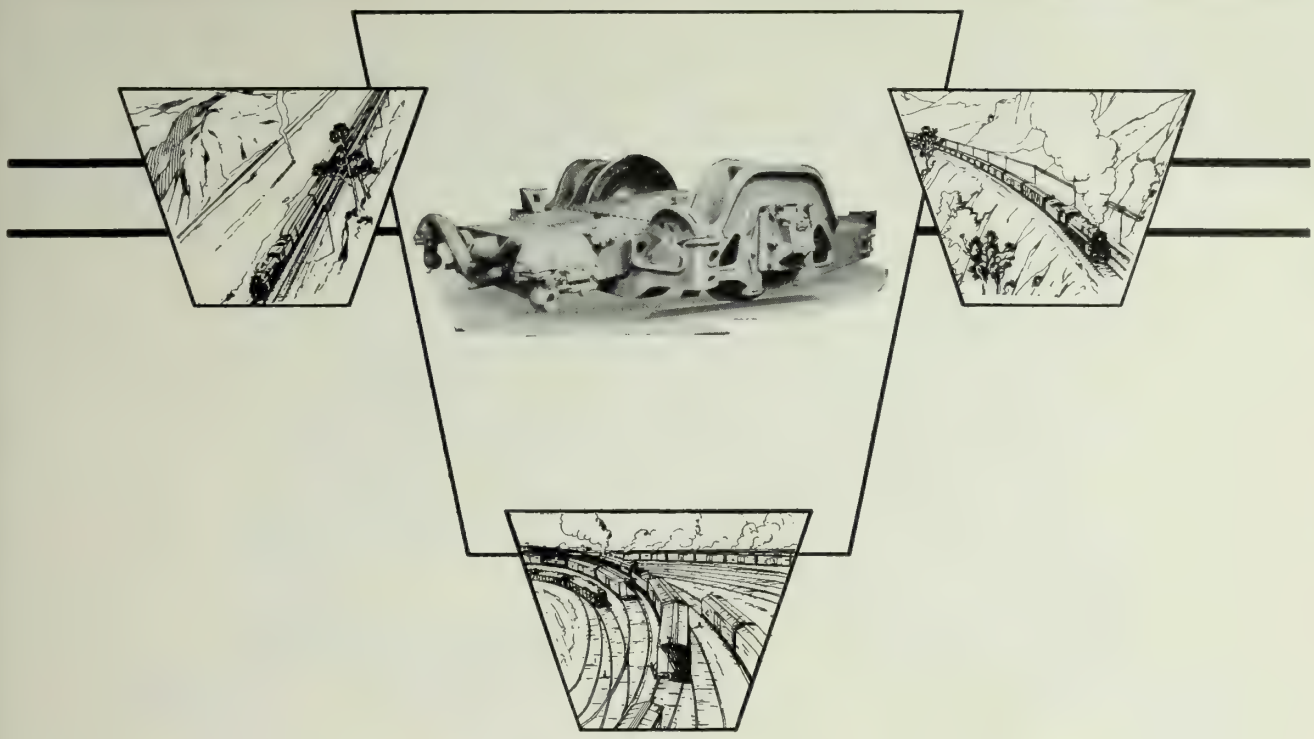
"I don't know," said Fokker, spreading his hands in an expressive gesture. "We'll see."

Of course, he knew perfectly well; but Fokker loves the dramatic. The plane dived and gathered speed, straightened out until it lost speed again, dived and repeated the performance. He showed more convincingly than with words that his plane would not go into a spin when it stalled. Then the designer, smiling his mischievous smile, climbed back into the cockpit, turned on his switches and brought his motors to life with a dive. A group of men climbed out, enthusiastic about the Fokker wing.

"Make them safe so they won't come down," is Fokker's motto.

U. & U. Photo.

Bevera Viaduct on the New Line, Nice-Vintemille-Coni R. R. Notice the Arch Is Built At a Slant, An Unusual Feature.



Hitch On The Booster

WHEN passengers are jolted into profanity after every start—remember what an easy start is made with The Booster.

When a bad rail this winter makes you double over the hill and delay operation think how The Booster could have avoided the trouble.

When fast passenger trains persist in running behind, recall that The Booster speeds get-a-way and saves several minutes at each stop.

Many thousand locomotives have potential power in the weight carried on trailing wheels.

Turn it into active use by hitching on The Booster. Help existing locomotives meet modern standards of operation.

FRANKLIN

RAILWAY SUPPLY COMPANY, INC.

The Locomotive Booster Capitalizes Idle Weight and Spare Steam

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO MONTREAL

Wiping Out Grandfather's Ways

How Modern Day Lift Trucks and Skid Platforms Cut Down the Cost of Handling Materials

By J. V. Miller

C. M. St. P. & P. R. R.

BETTER than fifty per cent of all production costs of industry is consumed in the handling of materials. While the railroads manufacture comparatively little, they consume vast quantities of material—over one billion 400 million dollars' worth a year, of which the fuel item totals a little over $400,000,000, leaving approximately one billion dollars' worth of materials which must be handled by their stores departments. Some railroads carry in stock 65,000 items of material, some carry over 100,000 such items. It is the function of the supply department, more commonly called the stores department, to order stores and distribute them to the using departments in much the same manner as a large wholesale house serves its customers.

Not less than 75 per cent of the work of the stores departments is that of handling materials, yet until a few years ago the major efforts toward more economical operation were directed along lines other than those of materials handling. Some of the more progressive roads are beginning to see the great possibilities in improved materials-handling methods, not only in handling of the vast quantities of railroad company material, but in the transfer of L. C. L. freight and loading and unloading of through freight as well.

Not many years ago practically all materials used on the railroads were handled by man power with two-wheel push trucks and wheel-barrows. About 1910 gasoline tractors appeared at our larger terminals and the saving was tremendous, yet their adoption has been slow, and even today it is doubtful whether there is a railroad which has more than one-third of the tractors that it can use economically.

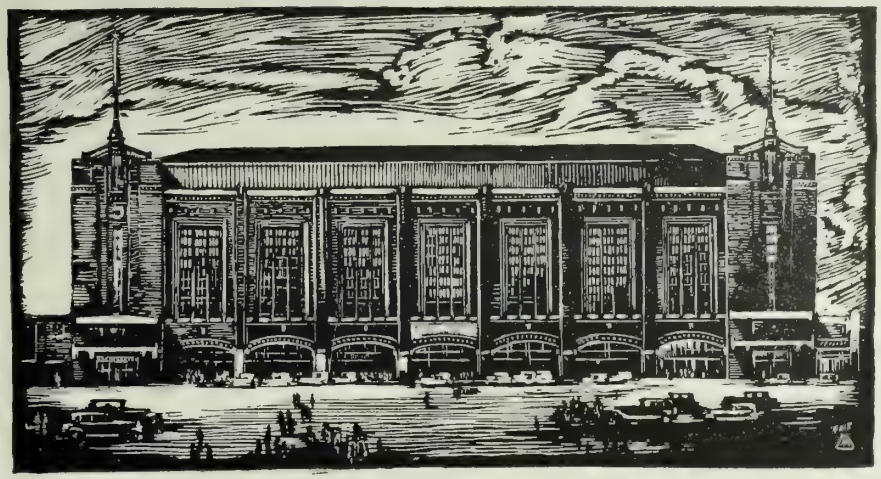
The lift-truck method of handling materials has been used for the past 20 years in a limited way, restricted for the most part, however, to the transfer of materials within some plant. Recently paper manufacturers have been shipping paper cut to size on skids which was formerly boxed in case lots. One skid now carries about 4000 lb. of paper, which formerly required six or eight cases, with the corresponding saving in lumber, freight, etc. Some concerns have had lift trucks in their plants for a great many years, but few have been getting the maximum service from them. A great many plants could keep from three to a dozen men busy for a long time figuring out new applications of the lift truck and its method of handling materials, for it should be remembered that more than half the production cost in the average plant is in the handling of material itself.

The railroads use millions of brake shoes and every shoe weighs over 23 lb. Prior to installing lift trucks and skids all brake shoes were handled by wheelbarrow in units of 15, each shoe requiring from three to seven separate handlings from the sand in the foundry to application on the car. Formerly they were transferred from the sand on the foundry floor to a wheelbarrow, wheeled by hand into the freight car or dumped in the gondola. When received at the district store, they were picked up from the floor by hand and wheeled, 15 in

Assistant General Storekeeper, Chicago, Milwaukee, St. Paul & Pacific. Contributed by the materials-handling division for presentation at the annual meeting, New York, December 3 to 7, 1928, of The American Society of Mechanical Engineers.

At Boston

THE NEW NORTH STATION



"....A Record Achievement in Large Terminal Construction"

BUILT over and around the old station —a section at a time — with 75,000 passengers passing through it every day—the new North Station was completed for the Boston and Maine Railroad in less than a year's time.

The Boston Transcript in commenting on the work editorially on November 13th, said:

> "The New North Station, BELIEVED TO REPRESENT A RECORD ACHIEVEMENT IN LARGE TERMINAL CONSTRUCTION, rose with amazing speed. Since erection had to go on even while passengers arriving and leaving on 360 trains daily were being cared for, the gigantic task was done a section at a time, literally over the heads of constantly passing throngs who were protected by barricades and wooden tunnels. Despite these handicaps, the new waiting room and much of the concourse were turned over to the public in eight months after the first pile was driven, and in the next three months—between August 20th and November 14th—the remaining portion of the old station was razed and the major station project carried to completion."

One of the features of the terminal is the large coliseum occupying all the upper floors above the mezzanine level. This great hall seats 18,000 people and will be operated by the Boston Madison Square Garden Club.

The Coliseum, together with the several concessions in the station, makes the terminal self-supporting.

We were engineers and constructors of the new North Station as well as other important work executed previously for the Boston and Maine. Our services are offered for railroad work of any kind, passenger and locomotive terminals, shops, power plants, electrification, trackage, storage buildings.

UNITED ENGINEERS & CONSTRUCTORS, INC.

Dwight P. Robinson, Pres.

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NEW YORK PHILADELPHIA NEWARK CHICAGO

ATLANTA LOS ANGELES BUENOS AIRES MONTREAL RIO DE JANEIRO

a wheelbarrow, into the storehouse where they were again handled in piling them for storage in stock. Upon requisition from the division store, they were again picked up by hand, transferred, 15 to a wheelbarrow, wheeled into a car, and deposited, usually in a hand-built pile. On arrival at destination, they were again picked up by hand from the floor of the car, again wheeled into the storehouse, and again hand-piled in stock. The operation of pick up, lay down, wheel, and pile was again repeated upon requisition for delivery to the repair track.

Contrast this with the best method of handling brake shoes in skids with the lift truck. One hundred and fifty shoes are now piled in each skid, ten times the number handled by a laborer in a wheelbarrow. These are deposited once and for all in the skids right on the foundry floor, and when a skid is filled, it is picked up with a lift truck and run right into the box car for shipment to the district store of the railroad. A single operator with lift trucks performs this operation of loading 150 brake shoes in about one-fourth the time that it used to take the wheelbarrow operators to load 15. Once the brake shoes are placed in the skids, they can be loaded into the freight car at such speed with the electric lift trucks that the entire carload of 24 skids is ready for shipment in less than one hour from the time of starting to load.

Upon arrival at the district store, the entire carload of 84,000 lb. of brake shoes is unloaded and deposited in the proper section of the storehouse or stores platform in less than an hour. Later, upon requisition from the division store or local stores, the skid loads of brake shoes are transferred quickly from storehouse to car or to repair tracks as required. If shipped to local store, the skid load is removed from the car by a single laborer with a hand-lift truck, and transferred to stock or to the repair shop as desired. A study of one unit of 6000 lb. reveals that under the old method it took 175 manual operations, whereas with the lift truck it took only seven, showing a saving of 168 manual operations. When the millions of brake shoes railroads consumed yearly are so handled, a tremendous saving to manufacturer and railroad will be effected.

An 8½-in. C. C. air pump weighs about 1750 lb. When it is necessary to ship one of these air pumps, the accepted practice on most roads is to lay it on the floor of the car. This takes from three to five men; at the destination it takes from three to five men to unload and transfer it to the storehouse, and finally, three to five men to load and handle it when needed in the locomotive shop.

With our present system of handling, the pump is bolted to a skid, this being done after it is repaired or upon receipt from the manufacturer. In all handling of this pump thereafter, one man with a lift truck either of the power or hand type, can easily load or unload the pump in one minute. It is difficult to estimate what the saving on this would amount to in a year, but considering the large number of locomotive air pumps in service and their frequent transfer to and from locomotives, it is safe to say that this one operation alone would show a tremendous return on the investment of a handlift truck if used for nothing else. There is also a great risk of personal injury under the old method, which is entirely eliminated by the new.

A brake beam is one of the clumsiest items of stock that a store room is called upon to handle, but we have developed a very simple skid which now handles 20 brake beams. It is entirely feasible to handle 30, but 20 is a better unit for our operation.

We manufacture and repair practically all of our own brake beams. After being painted these formerly were placed on the drying racks; from this they were transferred by hand to wagons, hauled over to the storehouse, and again transferred from wagon to stock pile by hand. Later, upon requisition, they were transferred from stock piles again to the wagon, moved by hand to the car, again transferred from the wagon and piled by hand in the freight car for shipment. At destination, the operation was repeated of removing the brake beams, one at a time by hand, transferring them to stock at the using point. The same movements are required in reverse order on bad-order brake beams, practically all of which are shipped back to headquarters for repair or scrap. On a lot of 20 brake beams this makes a total of 200 manual operations.

According to our present practice, these 20 brake beams are handled on a single skid. Ten manual operations on this skid load accomplish the same results, showing a saving of 190 manual operations per lot of 20 brake beams. This is based on using only one man in the old system of handling. As these brake beams weigh over 80 lb. apiece and are very awkward to handle, it is found usually that two men are employed in handling them, which of course doubles the man-hour time required.

In moving a locomotive tire into or out of a box car, as many men as can safely be gathered around the tire perform the operation; as a rule there are six. The tires usually lie flat on the floor and after they are raised by lubber lift they are rolled at a snail's pace to the stock pile, locomotive shop, or scrap pile as the case may be. This operation is a most dangerous one, and it is surprising that more accidents have not occurred. Speaking conservatively, six men are occupied at least five minutes with a tire.

Now compare this with the best method of lift truck-skid operation. Six tires are placed on a single skid, and in less than one minute an electric lift truck will handle them with perfect safety in loading or unloading a car or in transferring to the locomotive shop. It is true that we have as yet succeeded in handling only tires of the size up to 56 in. in diameter, but this takes care of the larger part of our consumption. At a general store of any fair-sized road, an electric lift truck could pay for itself every year with ease just handling this one item.

Air hose is used in large quantities, and handled in many different ways on different roads. An air hose is picked up and laid down so many times that it is a wonder it is not worn out before being applied to the car. A careful time study reveals that it takes one man an hour to unload 400 air hose, counting only one operation.

A special skid developed by us for handling hose has a capacity of 400, but normally we load skids with only 300, as this better fits our needs. The hose are placed on skids immediately after mounting and final inspection in the shop, and from then on they move in units of 300 through the general storehouse, and the successive shipments to division stores, local stores, as required, and usually until actually applied to the car. In almost every case a new hose replaces a scrap air hose, and this is returned to the storehouse on skids in the same manner. We save at least $2 on every skid load of 300 handled.

Car journal brasses must be handled carefully in order to avoid injury to the bearing-metal surface. They were one of the first items to be handled on skids, and the operation is now 100 per cent complete, that is, the brasses never leave the skid from the time they are placed on it in the factory until they are removed by the

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Snows, rains, 40 below zero or 110 in the shade . . . in all kinds of weather . . . under the most trying conditions, Fairmont and Mudge Motor Cars have been serving steadily, faithfully, efficiently.

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Fairmont MM9 Inspection Car
Water Cooled for 1 or 2 men. Other models include: C1—Air Cooled for 1 or 2 men, and M19—Spring Mounted for 1 to 4 men.

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Ringseald-Axlsaver—Bower—Hyatt—Timken
MOTOR CAR ENGINES
QB—PHB—PHA—QHB and W
WHEELS AND AXLES

THE RAILROAD WORLD KNOWS

man who places them in service on the car.

All of our journal brasses are received from a local foundry by automobile truck. Formerly they were just piled on the floor of the truck and unloaded by hand truck to proper location in the storehouse, from which they were later shipped out in the same way. Three men were used and it took an hour and 25 minutes to unload a truck load of brasses. After unloading, the trucks returned empty to the manufacturer. Scrap brasses and brasses to be relined were loaded into box cars and shipped to a point near the foundry, as that plant has no trackage, and the brasses were then reloaded into the trucks and transferred to the plant. More than a hundred carloads of scrap brass were returned every year. The average time consumed by the truck for the delivery of brasses and return of scrap brass was 3 hours and 25 minutes.

Today this material arrives in skids, four skids to the truck, and each skid holding approximately 3500 lb. of brasses. Upon arrival at the general store an electric lift truck unloads all four skids and places them in the proper position in the storehouse in less than five minutes. The auto truck then moves about 300 ft. to the scrap stock, and here the same electric lift truck loads it with scrap brass in four skids in about the same time. The time consumed in receiving this 14,000-lb. load of brasses and the return of scrap brasses has been cut from 3 hours and 25 minutes to approximately 15 minutes, a saving of 3 hours and 10 minutes on a truck load. No box cars are used for the return of scrap brass. A truck of this size is worth 10 cents a minute, so it is not difficult to compute the saving in this operation, which one item alone fully justifies the expense of the electric lift truck.

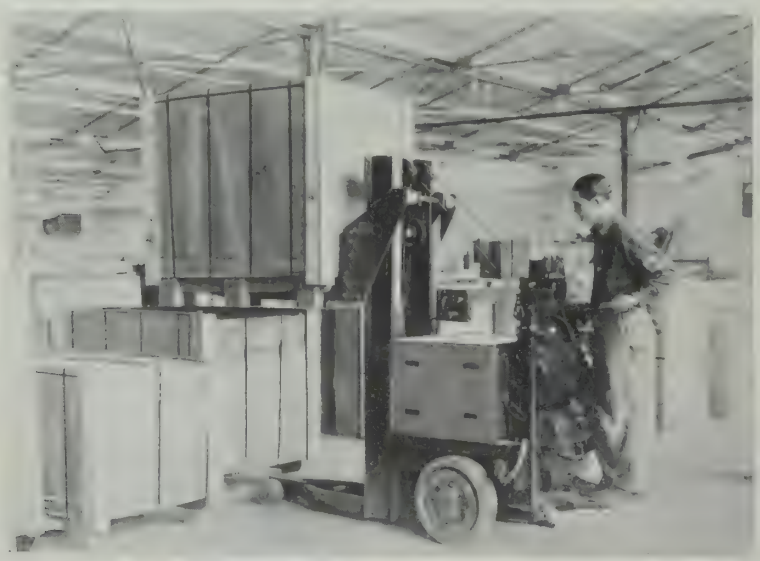
These Boxes May Contain Groceries, But the Lift Truck and Skid Platforms Operate Just the Same in Handling Railroad Materials and Supplies.

Brasses are never removed from the skids until they reach the point of application to the car. The skids are of such dimensions as fit most conveniently into the standard freight car, and the size of these skids has been standardized by joint committee action of the department of commerce with representatives of manufacturers and prominent users. Two standard heights of skids of 8 in. and 12 in., respectively, clear height under the skids and a minimum of 29 in. between skid runners have been selected as standard. No overall outside dimension of the skids has been standardized but it is our practice to build these 33 in. wide and 54 in. long, for in this size they will fit three wide in a box car, and a total of 24 skids can be shipped in the car.

As mentioned, a number of our heavier and more important items are now shipped by skid load to all local and district stores without any man handling whatever in shipment. After the skids have been emptied of new material at the local store, they are placed conveniently at points where the scrap originates. Usually only one class of scrap originates at a given point, but if there is more than one class an extra skid or two is provided, so that each skid carries only one class.

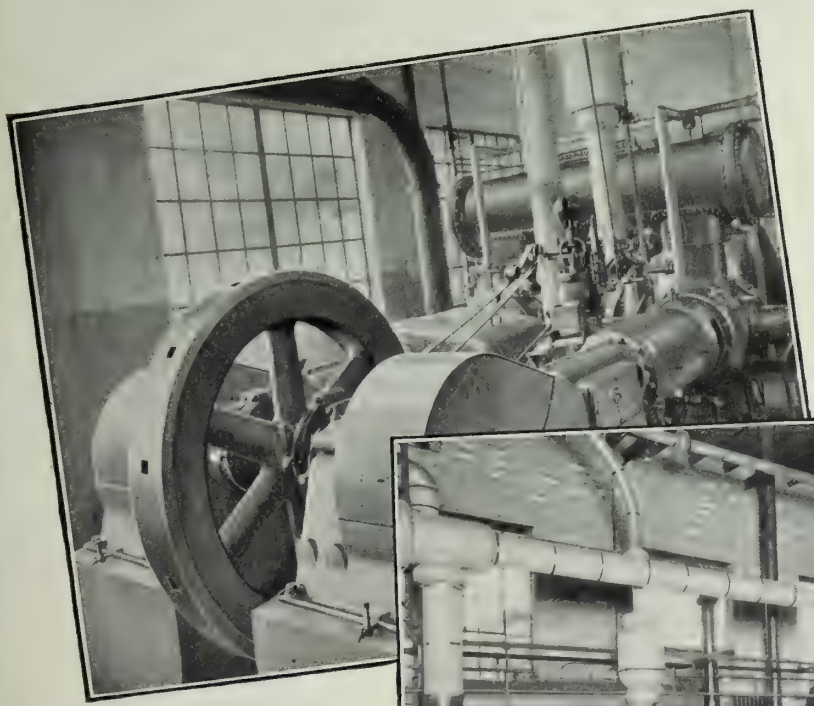
Most of the railroad scrap comes in gondolas, with everything from superheater units to brass globe valves dumped in a jumbled mass, and because of this it is rare that we ever get heavy loading on mixed scrap. Why should scrap in such vast tonnages as the railroads accumulate, and which for the most part is originally separated by classes, be dumped together in such manner in a car, only to be resorted again later at considerable expense to the railroad company?

Under our present system, scrap is received in skids, only one class to a skid, and often 3000-4000 lb. to the skid. Upon receipt at the general store, this scrap is unloaded and dumped into the proper pile corresponding to each class of scrap, this requiring a subsequent handling with magnets when the scrap is sold. Eventually, however, the scrap will remain on the skids until the time of actual sale, when it will be loaded in the cars by crane trucks without any

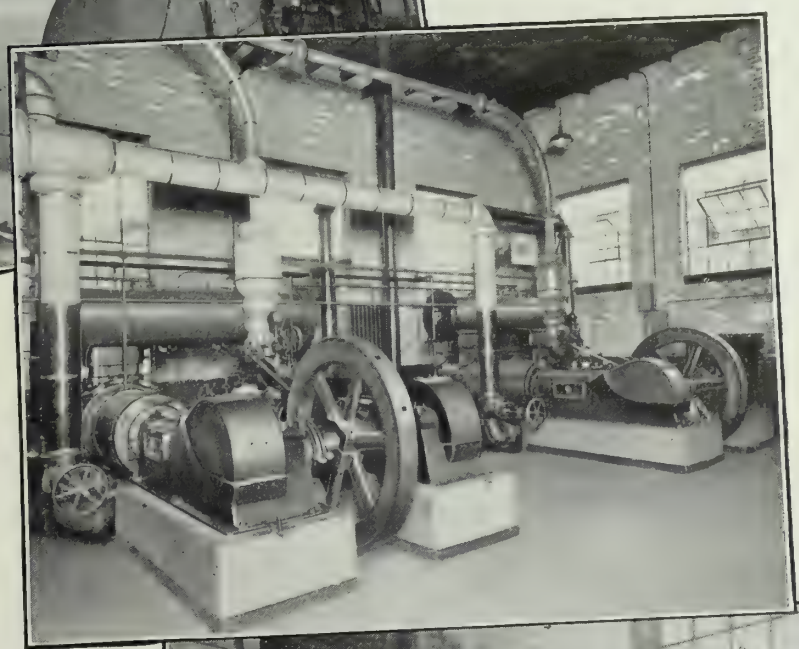


A Close-up View Shows Just How the Lift Truck Handles Heavy Boxes on the Skid Platforms.

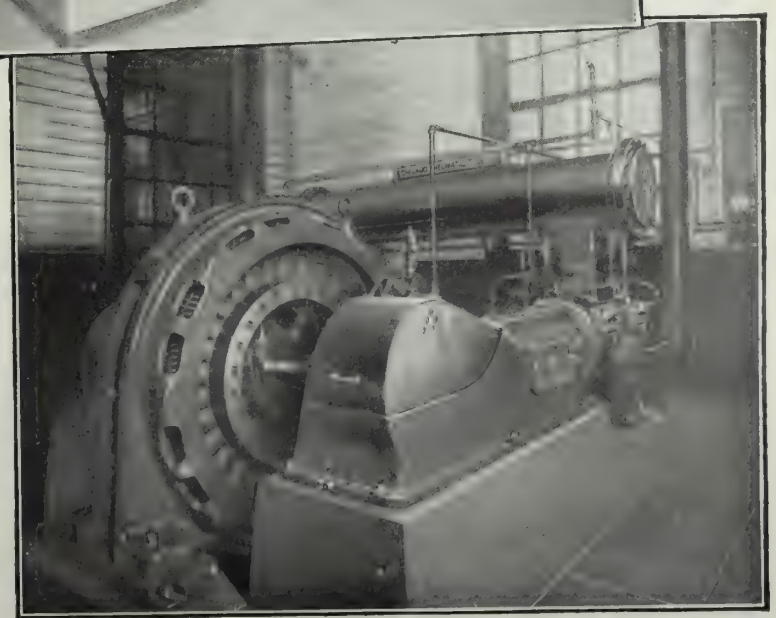
CP COMPRESSORS Recently Installed By Three Large Railroads



These installations are repeat orders from three prominent railroads whose experience with CP Compressors has proved their reliability and high sustained efficiency.



The Simplate Air Valve; the piston type of steam valve; efficient regulation of both the steam and motor-driven types; sturdy construction; reliable automatic lubrication and world-wide CP service facilities are some of the reasons why CP Compressors are preferred by railroad engineers.



There is a CP Compressor, stationary or portable, in steam, oil, belt or direct motor driven type, for every compressed air purpose. Write for literature.

Chicago Pneumatic Tool Co.
Railroad Dept.
6 East 44th St. - - New York
310 S. Michigan Ave. - Chicago
1004 Mutual Bldg. - Richmond, Va.

One Man With This Kind of Power Machinery Can Load or Unload A Large Amount of Freight or Other Materials in A Few Minutes.

hand operations on it. With this method of handling, we can load 6000 to 9000 lb. a minute. Compare this with the present magnet operation, which does well if it averages 1000 lb. a minute. Of course scrap material does not weigh as much as the new material shipped out, and it might be assumed that some skids would have to come home empty, but there are always so many items that are shipped direct to local points and not on skids, that this more than equalizes the situation.

Eighty-five per cent of the 65,000 to 100,000 items comprised in railway stores can be handled economically by the lift-truck method, and the major operations already cited indicate the possibilities.

Lift trucks are of two kinds, hand and powered. The hand-lift trucks lift from ¾ in. to 3 in.; the power-lift trucks are of many shapes and sizes, lifting from 4½ in. to 6 ft., and higher if desired.

The more unimportant local points should use hand-lift trucks, because of their lower cost and less frequent use; the larger and more important points should be equipped with the power-lift trucks, but it is surprising how quickly a hand-lift operation will grow into a power-lift operation if it is properly supervised, and by that is meant an economical, paying operation.

The lift-truck method of handling is not a competitor of the tractor-trailer method. Each has its own field, the lift truck for the short-haul operation, and the tractor trailer for the longer haul. Lift trucks are particularly suited to conditions where short, quick movements are desired, and the more they are localized, the more they will return on the investment. Incidentally, however, do not be surprised in finding that more tractors are needed after putting in lift trucks, for these act as feeders for the tractor train, placing their skids directly on a low trailer where a long haul to a distant point about the plant is necessary. A special raft at the proper height to bring the trailer floor even with the platform makes it possible to handle this conveniently.

An experiment in materials handling is reduced to failure if the management has the idea that success lies merely in the purchase of certain equipment. Every industry or plant has its own problems in material handling, and the successful solution may require much thought, and certainly all the experience obtainable. When installing lift trucks, select the best man as a supervisor, and give him all the executive assistance and backing such a radically new development will require. Above all, forget the first cost, and look to the net return on the investment. If there is sufficient materials-handling work to be done, the saving under the new system of handling will amount to more than double the investment yearly.

An Old Friend

The girl turned to a polite young man who was showing her through the factory and said, "What is that big thing over there?"

"That is a locomotive boiler."

"Why do they boil the locomotive?"

"To make the locomotive tender." And the polite young man continued to look straight ahead. — *Brooklyn Eagle.*

How's Your Record For Barrel Rolls?

A world's record for consecutive barrel rolls in an airplane was made at St. Louis, December 18, by "Red" Jackson, a test pilot for the Curtiss-Robertson Airplane Manufacturing Company, who landed his plane after making 417 rolls.

The record was 283 rolls. A barrel roll is a complete lateral turn in which the airplane turns wing over wing.

The News of the Month

What's Been Going on in Transportation, Railroads, Automotive, Supply, Aviation

Ernest I. Lewis of Indiana has been elected chairman of the Interstate Commerce Commission for the coming year, to succeed J. B. Campbell of Spokane, Wash. It is an interesting coincidence that Mr. Lewis becomes chairman only a short time before his old friend, Herber Hoover, becomes President. Mr. Lewis and Mr. Hoover met more than twenty years ago in Australia when Lewis, then the star reporter on the Indianapolis News, was making a tour of the world, writing travel articles for his paper. Hoover gave the enterprising newspaperman letters of recommendation to carry with him on his tour of the world. Mr. Lewis found that his mining friend knew some influential person in nearly every out-of-the-way corner of the world. The two have remained steadfast friends. On the night Mr. Hoover was nominated at Kansas City, Commissioner and Mrs. Lewis were the sole guests at the Hoover home. While in the West, the past summer, on valuation business, Commissioner Lewis had occasion for a long and serious consultation with Mr. Hoover on the subject of coordination of rail and water rates, looking toward savings to the shippers throughout the country. It is well known that part of Mr. Hoover's plan for agricultural relief is for a reduction in transportation rates, if it can be done without injustice to the carriers, either water or rail. Mr. Lewis is collaborating with him on this subject.

Commissioner Lewis's career began as a printer's apprentice at 11 years of age. Later he became a reporter. One of his assignments took him to Europe to study artificial gas-making methods with an idea of reducing gas rates in Indianapolis. He became an authority on public utilities and in 1917 became a member of the Indiana public utilities commission. Upon the recommendation of Postmaster General Harry S. New, then senator from Indiana, Commissioner Lewis was appointed to the Interstate Commerce Commission in 1921 to fill an unexpired term. He was reappointed by President Coolidge in 1925.

The nomination of Clyde H. Aitchison of Oregon to be a member of the commission was approved by the senate interstate commerce committee, December 21, after objections to his confirmation had been withdrawn.

The committee also gave its approval to the confirmation of Claude R. Porter of Iowa and Patrick J. Farrell of the District of Columbia to be members of the commission.

Ernest I. Lewis, Chairman, Interstate Commerce Commission.

Cascade Tunnel Dedicated Nationally

The Great Northern Railway Company's Cascade tunnel, nearly eight miles long, longest in America and fifth longest in the world, was opened to traffic, formally, the evening of January 12. A full description of the great project is presented in the front part of this magazine in an article by Ralph Budd, president of the Great Northern. The new tunnel, burrowing under the mountains from Scenic to Berne, Wash., became a part of the nation's transportation machine in the most elaborate radio ceremonies ever attempted in this nation, arranged by the National Broadcasting Company for the railroad with a hook-up of 37 stations.

The ceremonies in the evening of January 12 began at Berne, the east portal, where special trains bearing delegations from both sides of the state met. There Ralph Budd, president of the Great Northern, was introduced by Graham McNamee, radio announcer. After a brief program at Berne, which included the opening of a gate and addresses, the trains consolidated and passed through the concrete-lined bore. At the banquet at Scenic, Judge L. C. Gilman, vice president of the Great Northern, was toastmaster.

The tunnel, built in the record time of three years, cost $14,000,000 and is part of a $25,000,000 development project of the Great Northern Railway in the Cascade Mountains.

The dedication was a real national event participated in by distinguished persons in cities separated by great distances. The President-elect, Mr. Hoover, at Washington, spoke briefly and pointedly as an engineer might be expected to do; General Atterbury, president of the Pennsylvania Railroad, spoke from Pittsburgh, and Mme. Schumann-Heink sang from San Francisco. It was a snappy, fast-moving dedication from start to finish.

Mr. Hoover, speaking from his home on S street, Washington, described the new tunnel, expressed his pleasure in being included in those helping in its dedication, and then added a few words which pleased every man in any way connected with the job.

"Never," said Mr. Hoover, "have we witnessed a more perfect co-ordination of the forces of American industry than in this great job. The miners, who have operated the drills, who cleared the rock and built the new tracks during these three years have established a record in construction for their skill. These are men who need no recommendation in the future other than that they were on the staff of the Cascade Tunnel.

"President Budd and his fellow engineers who have designed this tunnel and carried it to successful completion have left an enduring monument to their skill and abilities. The great transportation organization which has made it possible by its courage and foresight has demonstrated again the progressive character of American industry."

Hereafter, indefinitely, the same radio hook-up is to be made every Monday evening at 7:30 o'clock Pacific Coast time. This is to broadcast throughout the United States information about the Pacific Northwest. The first of these programs was announced for Monday evening, January 14, to be given over to incidents in the life of James J. Hill.

Car Loadings Declined in 1928

Complete reports for the year show that 51,576,731 cars were loaded with

revenue freight in 1928, the car service division of the American Railway Association reports show. This was a decrease of 59,075 cars or .1 per cent compared with 1927 and a decrease of 1,522,088 cars or 2.9 per cent compared with 1926. Although the volume of freight traffic, measured by the total number of cars loaded with revenue freight, was less in 1928 than in either 1927 or 1928, the movement during the last year was handled with the greatest operating efficiency ever attained. Not only were fewer trains and locomotives required in proportion to the amount of traffic transported, but the average load per train was greater, and shippers received the best service ever afforded them due to the increased promptness with which freight shipments were handled. Loading of revenue freight exceeded one million cars in 24 weeks in 1928 compared with 28 weeks in 1927 and 27 weeks in 1926.

For the week ended on December 29, loading of revenue freight amounted to 668,586 cars, a decrease, due to the Christmas holidays of 230,382 cars compared with the preceding week. It also was a decrease of 12,968 cars compared with the same week in 1927 and a decrease of 66,695 cars under the same week in 1926. Miscellaneous freight loading for the week totaled 245,609 cars, an increase of 8,070 cars over the corresponding week in 1927. Coal loading totaled 119,095 cars, a decrease of 22,237 cars under the same week in 1927. Grain and grain products loading amounted to 36,984 cars, an increase of 960 cars above the same week in 1927. In the western district alone, grain and grain products loading totaled 26,058 cars, an increase of 627 cars above the same week in 1927. Live stock loading amounted to 21,502 cars, a decrease of 652 cars under the same week in 1927. In the western districts alone, live stock loading totaled 16,052 cars, a decrease of 555 cars under the same week in 1927.

Loading of merchandise less than carload lot freight totaled 192,905 cars, an increase of 673 cars above the same week in 1927.

Railway Construction

Tracks and Yards

ALABAMA.—The Birmingham Southern is reported to be planning the rearranging of yard tracks and the raising of tracks at Birmingham at the approximate cost of $170,000.

—The Birmingham, Selma & Northern has authority to build a 10-mile extension from Jericho to Joyce Hill and a 22-mile branch west and northwest from Jericho. The cost is estimated at $174,832.

CALIFORNIA.—The Southern Pacific has permission from the I. C. C. and the Railroad Commission of California to purchase from the Santa Fe the one-half stock interest in the Northwestern Pacific, giving the Southern Pacific complete control of that company.

INDIANA.—In accordance with an agreement between the Indianapolis Union and the Indianapolis board of works the board, on December 10, ordered the railroad to proceed with its elevation of tracks from West New York street to English avenue, involving an expenditure of $10,000,000.

KANSAS.—See Texas.

MONTANA.—See North Dakota.

TRUE ECONOMY

Can be Secured in Steam Locomotives

by the use of

ECONOMY BAFFLE WALLS

THEY INSURE MAXIMUM LIFE OF BRICK WITH A MINIMUM WEIGHT ON THE ARCH TUBES

THE ECONOMY METHOD of SUPPORTING SIDE BRICK on TRUNNIONS ELECTRICALLY WELDED to the SIDE SHEET ELIMINATES the liability of the side brick dropping into the fire bed and the necessity of straightening or replacing bent arch tubes.

THE ECONOMY METHOD provides radiant heat near the side sheets, causing more complete combustion in this "COLD" area. It also PREVENTS the accumulation of coke and slag in the "pockets" resulting when inclined side brick are used, thus increasing the active fire-box heating surface.

ECONOMY ARCH COMPANY

1843 RAILWAY EXCHANGE BUILDING ST. LOUIS, MISSOURI

Distributors of Locomotive Arch Brick Manufactured by
EVANS & HOWARD, LACLEDE-CHRISTY, A. P. GREEN and NILES FIREBRICK COMPANIES

NEW MEXICO.—The Texas & Pacific has asked the State Corporations Comm. of New Mexico for authority to build a 65-mile line from the southern boundary through Lea county to Lovington. This line would connect with the Texas-New Mexico, now being built from Monahans, Tex., to the Texas-New Mexico state line.

NORTH DAKOTA.—It is reported the Great Northern plans the construction in 1929 of 26 miles of second main track between Williston and Snowden, Mont., at a cost of $1,100,000.

OHIO.—The Pennsylvania, the Big Four, and the B. & O., owners of the Dayton Union; and the Erie have approved plans to elevate tracks near the Union Station at Dayton which will eliminate grade crossings at South Wayne avenue, East Third, East Fifth, Wyandotte, Stone South Jefferson, South Main, South Ludlow and South Perry streets. The cost is estimated at $7,500,000.

VIRGINIA.—W. W. Boxley & Co., Roanoke, has a contract from the Norfolk & Western for a 10.5 mile section of track on the Guyandot & Tug River extension.

—The I. C. C. has authorized the Prince George & Chesterfield to construct a 16-mile extension between Bellwood and Hopewell and about four miles of siding and yard track at an approximate cost of $1,000,000.

WEST VIRGINIA.—Contracts totaling $535,000 have been awarded by the Virginia for the 17-mile track between Itmann and a point west of Pineville.

Buildings and Structures

COLORADO.—Walsenburg. The Roberts & Schaefer Co. has a contract from the Colorado & Southern for a 150-ton capacity, three-track simplex automatic electric reinforced concrete locomotive coaling plant.

INDIANA.—South Bend. The New Jersey, Indiana & Illinois, a subsidiary of the Wabash, has placed a contract with the Roberts & Schaefer Co., for a "N. & W." type electric direct engine coaler.

MONTANA.—Whitefish. The Great Northern has authority to build a new coaling station and a six-stall addition to the enginehouse here at an estimated cost of $100,000.

NORTH DAKOTA.—Williston. The Great Northern is planning terminal and yard improvements, including the replacement of the wooden water tank and coaling station with steel structures, to cost $100,000.

TEXAS.—Forth Worth. The M. K. T. is reported to be planning the construction of a 10-stall enginehouse here to cost about $405,000.

Changes in Personnel

Executive and Operating

J. H. Dyer

The Southern Pacific announces these appointments effective January 1: **Henry W. de Forest,** chairman of the executive committee, was elected chairman of the board, a new position. He will manage the company's general financial affairs and consolidation matters. **Hale Holden,** for many years president and chairman of the executive committee of the Burlington, was elected chairman of the executive committee. **William Sproule,** president, after more than 41 years of service with the Southern Pacific, retired from active service December 31. **A. D. McDonald,** vice chairman of the executive committee, in addition to the other duties of that position, will have general control of the Southern Pacific Steamship Lines. He also will continue as president of the Texas & New Orleans and will maintain headquarters in New York and Houston. **Paul Shoup,** executive vice president, was elected president to succeed Mr. Sproule, with headquarters in San Francisco. The office of executive vice president will be discontinued. **L. J. Spence,** executive of-

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SIMPLICITY

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CONLEY

Solid Manganese
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SPRING FROGS

SHOWING SPRING FROG IN SERVICE

Are giving excellent service under severe traffic conditions on Railroads using them.

Twenty years successful service by CONLEY TYPE FROGS have demonstrated their merit for safe and economical service.

CONLEY FROG & SWITCH CO.

Memphis, Tenn.

F. L. Burckhalter

ficer, after more than 43 years service, retired December 31. The office of executive officer is discontinued. **J. H. Dyer,** general manager of the Pacific lines, was appointed vice president in charge of operation, with headquarters in San Francisco. **F. L. Burckhalter,** first assistant general manager, was appointed general manager of the Pacific lines to succeed Mr. Dyer. The office of first assistant general manager is discontinued. **Frank Mulks,** assistant to the executive vice president was appointed assistant to the president, with headquarters in San Francisco.

The Erie announces that **Robert J. Bowman,** assistant to the president and **Robert E. Woodruff,** general manager, eastern district, have been appointed assistant vice presidents with headquarters at New York.

F. A. Bogue, trainmaster on the Rock Island, has been appointed acting superintendent of the Nebraska-Colorado division, with headquarters at Fairbury, Neb., to succeed **E. D. Hungerford,** granted a leave of absence because of illness.

Bruce Scott, general counsel of the Burlington and the Colorado & Southern, with headquarters at Chicago, has been elected vice president in charge of the law departments of those companies.

Edgar Thomason, vice president and general manager of the Durham & Southern, has been elected president and general manager, succeeding **B. N. Duke,** deceased.

Frederic J. Fuller, vice president of the Central Union Trust Co., has been elected a director of the Mobile & Ohio to succeed **Samuel Woolverton,** resigned.

P. J. Neff, assistant to the president of the Missouri Pacific, also has been appointed vice president and general manager of the Missouri Pacific Transportation Co., the motor coach subsidiary of that road.

The Boston & Maine announces that **Walter E. Barrett,** assistant division superintendent, has been appointed superintendent of the terminal division, with headquarters as before at Boston.

J. A. Tobin, assistant superintendent of the Laurentian division of the Canadian Pacific, has been appointed assistant superintendent of the Smith Falls division to succeed **F. A. Winterson,** granted a leave of absence. Mr. Tobin will be succeeded on the Laurentian division by **A. R. MacLeod.**

The Buffalo, Rochester & Pittsburgh has elected these directors: **Edward G. Miner, Harry Yates, Frank B. Baird, George F. Rand, J. H. Hillman, Jr., Edward L. Myers, Mortimer B. Fuller,**

Frank Mulks

William W. Reilley, Walter P. Cooke, and William G. Bernet. They succeed the old board who resigned following the acquirement of the road's stock by the Van Sweringen interests. **Ernest Iselin** resigned as secretary of the road and was elected vice president to succeed **Adrian Iselin. U. V Clark** was elected secretary.

Byron S. Harvey, vice president of Fred Harvey, Inc., with headquarters at Chicago, has been elected president with headquarters at Kansas City, to succeed **Ford Harvey,** deceased.

C. B. Wright has been appointed chairman of the general committee of Division II, Transportation, A. R. A., with headquarters at Chicago, to succeed **C. W. Crawford,** resigned.

Fred B. Miller, president of the Laramie, North Park & Western resigned, January 1, because of ill health.

Financial and Legal

George A. Walker, assistant treasurer of the Pennsylvania and its subsidiary companies, retired from active service January 1. Mr. Walker's first work was with the Norfolk & Western, starting in 1880 as an office boy in the treasury department. Seven years later he entered the treasury department of the Pennsylvania and remained in the service of that company during the following 41 years. He was appointed assistant treasurer in 1903.

The Southern Pacific announces that the headquarters of **T. O. Edwards,** general auditor in charge of operating accounting, has been transferred from San Francisco to New York. The title of **C. M. Scott,** assistant treasurer, with headquarters in San Francisco, has been changed to local treasurer. The title of **Robert Adams,** assistant general auditor, with headquarters in San Francisco, has been changed to associate auditor.

E. C. Bates, assistant treasurer of the Western Pacific, has been elected treasurer, with headquarters at San Francisco, to succeed **Charles Elsey,** who remains vice president.

A. R. Seder, auditor of disbursements of the Chicago, St. Paul, Minneapolis and Omaha has been promoted to general auditor with headquarters as before at St. Paul.

George J. Mayer, assistant general auditor of the Northern Pacific, with headquarters at St. Paul, retired January 1, after 39 years in the accounting department of that road.

Charles Jensch, comptroller of the Chicago, St. Paul, Minneapolis & Omaha, with headquarters at St. Paul, also has been appointed comptroller of the Chicago & North Western with headquarters at Chicago, to succeed **Lewis A. Robinson,** retired.

George Janvier, general counsel for the Louisiana Southern, retired December 31. **N. W. Bond** has been appointed general counsel, and **William H. Talbot** general attorney, with headquarters in New Orleans. **Robert H. Kelley,** Houston, has been appointed special counsel.

Purchases and Stores

N. H. Foster, purchasing agent for the Los Angeles & Salt Lake, with headquarters at Los Angeles, has retired after 60 years railroad service. Mr. Foster, who is 79 years of age, began as a clerk in the master mechanic's office at Winnemucca, Nev. He joined the Los Angeles & Salt Lake as purchasing agent in 1904.

George W. Leigh, assistant purchasing agent and general storekeeper, of the Soo Line and the Duluth, South Shore & Atlantic, has been appointed purchasing agent to succeed **E. T. Stone,** deceased.

Traffic

C. McD. Davis, freight traffic manager of the Atlantic Coast Line, has been appointed vice president in charge of traffic, with headquarters at Wilmington, N. C., to succeed **R. A. Brand,** retired.

Horace H. Holcomb, freight traffic manager of the Burlington, has been appointed vice president, traffic department, to succeed **C. E. Spens,** promoted.

Charles C. Trueb, division passenger agent at Detroit for the Pennsylvania, has been appointed general eastern passenger agent with headquarters at New York.

The St. Louis Southwestern an-

SIMPLEX CLASP BRAKES

The Standard Brake for 4 and 6 Wheel Truck Passenger Equipment

Simplex Beam assembly furnished with brake hangers and beam trunnions protected against wear by hardened, ground bushings.

Positive acting, adjustable and reversible Brake head

AMERICAN STEEL FOUNDRIES

NEW YORK CHICAGO ST. LOUIS

nounces that **G. S. Trowbridge** has been appointed assistant to the general traffic manager with headquarters at St. Louis.

William Fulton, district passenger agent of the Canadian Pacific has been appointed assistant general passenger agent, with headquarters as before at Toronto.

C. H. Morrill, assistant to the vice president in charge of traffic of the Frisco, with headquarters at St. Louis, has been appointed traffic manager of the Pacific Coast territory, with headquarters at Los Angeles.

Harry H. Kiernan, executive clerk in the president's office of the Illinois Central, has been appointed assistant to the president of the Peoria & Pekin Union with headquarters at Seattle and San Francisco. He will devote his time to solicitation of freight on the Pacific Coast.

Thomas H. Gurney, general passenger agent of the Chesapeake & Ohio, has been appointed passenger traffic manager, with headquarters at Richmond, to succeed **John D. Potts,** deceased.

The Southern Pacific announces the appointment of **J. H. McClure** as general freight and passenger agent at Phoenix, to succeed **E. J. Fenchurch,** deceased. The position formerly held by Mr. McClure, assistant general freight and passenger agent has been abolished.

Charles C. Taylor, assistant general freight agent of the Mobile & Ohio, has been promoted to assistant freight traffic manager, with headquarters at Memphis.

C. F. Smith, general superintendent of passenger transportation of the New York Central, has been promoted to manager, passenger transportation, headquarters at New York. **C. Metzman,** transportation assistant to the president has been named manager, freight transportation. **W. R. Dallow,** has been appointed manager of industrial development with headquarters at New York.

William C. Hope, passenger traffic manager of the Central Railroad of New Jersey, retired January 1 after 50 years service. **Col. Walter V. Shipley,** formerly general passenger agent of the B. & O., has been appointed to succeed Mr. Hope.

George E. Merchant has been appointed coal traffic agent of the Buffalo, Rochester & Pittsburgh, with headquarters at Rochester, N. Y.

The Maine Central has announced these appointments: **George H. Eaton,** freight traffic manager, with headquarters at Portland, has been granted a leave of absence, and will be succeeded by **Lucien Snow,** assistant freight traffic manager. **Charles K. Hall,** general agent, with headquarters at Presque Isle, has been appointed assistant freight traffic manager, with headquarters at Portland, and will be succeeded by **Frank A. Murphy.**

Albert E. Brainard, assistant general passenger agent of the New York Central, lines east of Buffalo, has been appointed general passenger agent, with headquarters at New York. **Elbert L. Whitney,** has been appointed general coal and ore agent of the New York Central lines west of Buffalo and the Ohio Central, with headquarters at Cleveland.

T. E. McAndrews, city freight agent for the Erie at New York, has been appointed assistant general freight agent in charge of solicitation in the Chicago district with headquarters in Chicago.

J. H. Carroll, Jr., general freight agent of the B. & O., with headquarters at Pittsburgh, has been appointed freight traffic manager. **A. L. Doggett,** assistant general freight agent at Pittsburgh will succeed Mr. Carroll as general freight agent.

L. F. McFarland has been appointed general agent of the Cheaspeake & Ohio at Louisville.

The Union Pacific announces that **Louis Motter** has been appointed general freight and passenger agent of the St. Joseph & Grand Island, with headquarters at St. Joseph, to succeed **S. E. Stohr,** retired.

E. D. Ainslie, assistant general passenger agent of the B. & O., at Washington, D. C., has been appointed general passenger agent at New York, to succeed **W. V. Shipley,** resigned. **D. L. Moorman,** assistant general passenger agent at Detroit, has been named to succeed Mr. Ainslie at Washington. **E. J. Gleason,** division passenger agent at Toledo, succeeds Mr. Moorman at Detroit. **A. W. Miller,** city passenger agent at Pittsburgh, succeeds Mr. Gleason at Toledo.

K. G. Miller has been appointed assistant general freight agent of the Seaboard Air Line, with headquarters at Norfolk to succeed **O. C. Abrams,** resigned.

E. W. Goslee, district freight agent of the Gulf, Mobile & Northern at Detroit, has been appointed eastern freight agent at New York.

Mechanical

Emmett J. Cole, superintendent of shops at Omaha of the Union Pacific, has been appointed assistant to the general superintendent of motive power and machinery with jurisdiction over the entire system, a newly created position Otto Jabelmann, superintendent of shops at Cheyenne has been named superintendent of shops at Omaha. **Reinhart H. Fasen,** general foreman of shops at Cheyenne has been appointed superintendent of shops there and **Dennis C. Nickell,** erecting gang foreman at the Omaha shops has been appointed general foreman at Cheyenne.

Edward Pendergast, general car foreman on the Southern Pacific at West Oakland, has been appointed master car repairer of the Sacramento division with headquarters at Sacramento, to succeed **Andrew J. Gilson,** retired.

Lawrence Richardson

Lawrence Richardson, mechanical superintendent of the Boston & Maine at Boston, has been appointed chief mechanical officer, and **David C. Reid,** superintendent of locomotive maintenance, has been appointed assistant chief mechanical officer. The positions of mechanical superintendent and superintendent of locomotive maintenance have been abolished.

The Canadian Pacific announces that **W. J. Renix,** master mechanic of the British Columbia district at Vancouver, has been transferred to the Manitoba district with headquarters at Winnipeg to succeed **F. R. Pennefather,** retired.

Civil

The Union Pacific announces that these assistant chief engineers have been appointed chief engineers and have been placed in charge of their units: **G. J. Adamson,** chief engineer, Union Pacific, Omaha; **B. H. Prater,** chief engineer, Oregon Short Line, Salt Lake City; **Samuel Murray,** chief engineer, Oregon-Washington Railroad & Navigation Co., Portland, Ore.; **R. L. Adamson,** chief engineer, Los Angeles & Salt Lake, Los Angeles.

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"Does the Work of an Army of Men"

SNOW PLOW ★ ICE CUTTER ★ DITCHER ★

UNIVERSALLY STANDARD

O. F. JORDAN COMPANY

WALTER J. RILEY, PRESIDENT

EAST CHICAGO, INDIANA

'RALSTON BUILT'

Steel and Composite Cars

Completely rebuilding large numbers of steel cars in record time is an achievement that Ralston Steel Car Company has repeated time and time again.

This is possible only through our excellent facilities and well-balanced program, which, together with skilled workmen and competent engineers, keep the cars moving through the plant on regular schedule.

THE RALSTON PLANT is equipped to build New Cars, to Rebuild Old Cars, to Repair and to supply repair parts. All materials and work of the highest QUALITY and performed under expert Engineering Supervision.

RALSTON STEEL CAR CO.

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The Name Which Comes Most Naturally to Mind

When seeking greatest permanence, economy and satisfaction in rubber insulated wire and cable, the name of OKONITE comes first to mind. The same applies to splicing materials—to flexible cord — to varnished cambric cables — to impregnated paper cables — to all other products in this well-known family—and why?

Perhaps it is the word of engineers who, for more than half a century, have acknowledged OKONITE as their quality standard. Perhaps, again, it is your knowledge of the methods used in our manufacture—the only information which can possibly explain the performance of these products — the only methods which could possibly achieve such high and unvarying quality.

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OKONITE INSULATED WIRES AND CABLES
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VARNISHED CAMBRIC CABLES
MANSON & DUNDEE FRICTION TAPE
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OKONITE-CALLENDER PRODUCTS

SUPER-TENSION CABLES
IMPREGNATED PAPER CABLES
SPLICING MATERIALS

THE OKONITE COMPANY

The Okonite-Callender Cable Company, Inc.

Factories: Passaic, N. J. Patterson, N. J.

Sales Offices: New York Chicago Pittsburgh St. Louis Atlanta Birmingham San Francisco Los Angeles Seattle Dallas

General Electric Supply Corp., Boston, Mass.
Novelty Electric Co., Philadelphia, Pa.
F. D. Lawrence Electric Co., Cincinnati, O.

Canadian Representatives: Engineering Materials Limited, Montreal

Cuban Representatives: Victor G. Mendoza Co. Havana

W. H. Petersen

Charles A. Morse, chief engineer of the Rock Island, with headquarters at Chicago, has retired, and will be succeeded by **W. H. Petersen**, engineer maintenance of way, Des Moines. Mr. Morse started railroad work when he was 21 as a clerk with the Burlington. He later worked for three years in construction work with the Mexican Central. He became transitman of the Santa Fe in 1886 and chief engineer of the system in 1909. Mr. Morse became chief engineer of the Rock Island in 1913 and, except for a year spent as assistant director of operation, engineering and maintenance of way, United States railroad administration, held this position until the time of his retirement. Mr. Petersen has been with the Rock Island since 1906, having previously served as division engineer on the Union Pacific. At one time he was associated with the Great Northern and Northern Pacific as resident engineer, and prior to that time was with the Chicago & North Western as rodman.

James Buckelew, superintendent of the Maryland division of the Pennsylvania, with headquarters at Wilmington, has been appointed general superintendent of telegraph, with headquarters in Philadelphia. Mr. Buckelew succeeds **J. C. Johnson,** retired.

James D. Moffat, assistant engineer in the office of the chief engineer of the central region of the Pennsylvania at Pittsburgh, has been appointed chief engineer of the Dayton Union in charge of track elevation.

B. F. Dickinson, supervisor of telegraph and signals of the Pennsylvania, with headquarters at Jersey City, has been appointed engineer of telegraph and signals with headquarters at Pittsburgh.

D. P. Beach, division engineer of the Indianapolis division of the Pennsylvania, has been appointed engineer maintenance of way, Central Pennsylvania division, succeeding **Elmer Irving,** assigned to special duty. **C. W. Van Nort,** supervisor on the Pittsburgh division at Johnstown, has been appointed engineer of the Erie & Ashtabula division, with headquarters at Newcastle. **H. J. Shaw,** division engineer of the Akron division, with headquarters at Akron, has resigned and will be succeeded by **H. W. Anderson,** supervisor of the New York zone.

W. S. Broome has been appointed engineer of the Trinity & Brazos Valley with headquarters at Houston.

W. A. Parker, division engineer on the Union Pacific at Marysville, Kan., has retired.

M. F. Longwill, assistant to the president of the Wabash, has been appointed chief engineer, with headquarters at St. Louis, to succeed **R. H. Howard,** deceased.

R. J. Bond, division engineer, Atlantic division, of the Pennsylvania, has been appointed assistant to the engineer maintenance of way of the Southern division. He will be succeeded on the Atlantic division by **S. R. Hursh,** supervisor at North Philadelphia. **W. W. Portser,** division engineer of the Tyrone division, has been transferred to the Baltimore division and will be succeeded by **J. F. Swenson,** supervisor of the Philadelphia division. **J. G. Hopkins,** division engineer of the Baltimore division has been appointed assistant engineer valuation department. **W. D. Supplee,** supervisor of the New York division, has been appointed division engineer of the Logansport division to succeed **J. C. White,** transferred to the New York division. **C. E. Adams,** division engineer of the St. Louis division has been transferred to the Philadelphia terminal division.

C. A. Morse

Supply Trade Notes

J. Harvey Hart, purchasing agent for the **Baldwin Locomotive Works,** has been appointed general purchasing agent, with headquarters at Eddystone.

The **Edison Storage Battery Co.** announces that **P. H. Simpson** has been appointed sales engineer in the railway department specializing in railway car lighting batteries and industrial truck batteries, with headquarters in New York City.

Charles M. Muchnic, vice president of the **American Locomotive Sales Corpn.** since 1915, with headquarters at New York, has resigned. Mr. Muchnic was employed as a designer of locomotives in the United States and Europe from the time of his graduation from the Drexel Institute of Arts and Sciences, Philadelphia, in 1896, to his appointment as technical and sales representative of the Baldwin Locomotive Works in Europe in 1900. He was with the Baldwin Locomotive Works in 1896 and the Brooks Locomotive Works in 1897 and 1898. He was in the designing department of the Cie. de Fives Lille, Fives Lille, France, designing locomotives embodying American features for service in China during 1899, and collaborated with Mr. DeGlehn, of the Societies Alsacienne des Construction Mecaniques, Mulhouse, Alsace, in 1900 in designing the first four cylinder consolidation type locomotive for service on the Midi Railway of France. Mr. Muchnic was then appointed representative of the Baldwin Locomotive Works and had charge of its exhibit at the Paris Exposition. His next appointments were mechanical engineer of the Wisconsin Central, mechanical engineer of the Denver & Rio Grande, assistant to the vice president in charge of sales of the American Locomotive Co., manager of the foreign department of that company and vice president of the American Locomotive Sales Corpn.

The **Johns-Manville Corpn.** has purchased the assets and the line of products of the Celite Products Co.

J. W. Fristoe, president and general manager of the **T. J. Moss Tie Co.** since 1902 was elected chairman of the board December 5. **E. E. Pershall,** vice president, was elected president and **J. S. Penney,** general superintendent of plants, was elected a vice president.

Joseph J. Meydrech, vice president and treasurer of the W. N. Thornburgh Mfg. Co., Cicero, Ill., has been elected president of the newly organized **Vulca-Fibre Corpn.,** Chicago.

The **Pullman Car & Mfg. Corpn.** has purchased the Tennessee Coal, Iron & Railroad Company's car building plant at Birmingham.

Wilmer Cordes, acting manager of the advertising department of the **American Steel & Wire Co.** since the retirement of **B. B. Ayres** in March, has been appointed manager of the advertising department.

Alexander M. Hamilton, assistant vice president of the **American Locomotive Sales Corpn.,** has been appointed foreign sales manager with headquarters in New York.

Archie H. Dick, South American representative of the **American Locomotive Co.,** and its subsidiary, the American Locomotive Sales Corpn., for the past 25 years, has resigned.

Joseph Leidenger, vice president of the **Dayton Mfg. Co.,** retired January 1 after having been in the railway equipment business 47 years. **George Shields,** sales representative, has been transferred to New York as eastern sales manager with headquarters at 25 Church street.

The **Cincinnati Car Corp.,** Cincinnati, has announced it is prepared to build a complete line of industrial locomotives for hauling and switching, including gasoline, gasoline-electric, Diesel, electric trolley and storage battery types. The engines run from two- and three-ton units to 50 tons and larger and are built for various track gauges. **H. R. Sykes,** who has been identified with the

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METALLURGISTS
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CHEMISTS

ROBERT W. HUNT CO., Engineers

Offers the highest standard of reliability in the testing and inspection of all classes of Railroad Materials and Equipment.

Our inspectors in your service at the point of manufacture give you the greatest possible protection.

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CONSULTATION

New York, Philadelphia, Pittsburgh, London, Birmingham, Montreal, St. Louis, Toronto, San Francisco, Kansas City

Railways as Good Citizens

THE service of the railroads has gone on so quietly and certainly and efficiently that the people have come to take it all as a matter of course.

The railroads have revealed the most intense faith in the future of the country. They have invested more in capital stock, in materials of all kinds, in labor of all classifications, and in permanent improvements than any other business in the nation.

The railroads made possible the wide education of all the people. Without rapid railroad transportation, we would still be limited to the old-fashioned weekly newspaper and magazine. The intimate interchange of business would still be an idea had not the railroads eliminated East and West and North and South.

The railroads have given generous support to agriculture. They have spread the gospel of better fruit and livestock, of diversified farming, of better tillage, of dairying and poultry breeding, of better homes and of public health. They have cooperated in bringing the markets of the world close to the producers.

The railroads are co-operators in community building. They help maintain schools and highways and they keep their own property in best possible physical condition. They maintain a goodly payroll in every community they serve, and they pay their bills promptly.

The railroads continue straight ahead, keeping the faith, giving the very best service, and dealing kindly and generously with the public.

SOUTHERN PACIFIC

industrial locomotive industry for many years, will be in charge of sales and service of the locomotive division.

Robert M. Gates, manager of the industrial department of the **Superheater Co.,** has been elected vice president. Mr. Gates became affiliated with the company in 1922 and has since been directing the engineering and sales of Elesco superheaters for stationary power plants and special pipe coils for the oil and other industries.

Obituary

Edward T. Stone, purchasing agent of the Duluth, South Shore & Atlantic and the Soo Line, died at his home in Minneapolis, December 22.

W. J. Shotwell, assistant general freight agent of the Western Pacific, died December 18 in San Francisco from a heart attack.

Fletcher B. Enochs, former president and general manager of the Fernwood, Columbia & Gulf, died at his home in McComb, Miss., December 18, aged 61.

W. L. Tracy, former superintendent of the Lehigh Valley with headquarters at Sayre, Pa., died at his home in Shavertown, Pa., December 24. Mr. Tracy was at one time master mechanic and superintendent of the Missouri Pacific, the Louisville & Nashville and the Southern.

George W. Stevens, superintendent of motive power of the Lake Shore & Michigan Southern from 1884 to 1899, died at his home at Elyria, Ohio, December 16, aged 81.

Thomas F. Kent, vice president of the Magnus Co., Inc., New York, died at the Presbyterian Hospital there December 25, aged 54. Mr. Kent joined the Magnus Metal Co. in 1901 as manager of the Jersey City plant and was later transferred to the St. Louis plant. He was transferred to the New York office in 1919.

Jacob M. Dickinson, former secretary of war and receiver of the Rock Island from 1915 to 1917, died at St. Luke's hospital, Chicago, December 13, aged 77.

Louis B. Folley, superintendent of telegraph of the Lackawanna, with headquarters at New York, died at Maplewood, N. J., December 8. Mr. Folley was 73 years of age and had been with the Lackawanna more than 40 years.

William C. Adamson, former Georgia representative in congress, who sponsored the railroad act named for him, died of pneumonia January 3 in New York, aged 74.

Patrick Welch, who was identified with many railroad construction projects, died January 2 in Coronado, Cal., aged 69. Mr. Welch had a part in the construction of the Montana Central, the western extension of the Great Northern and the Grand Trunk line in western Canada.

Frank J. Burke, land and industrial commissioner of the Texas & Pacific, with headquarters at Dallas, died at his home there November 26.

Edwin Leslie Bevington, chairman of the Trans-Continental Passenger Assn., with headquarters at Chicago, died at his home there November 28.

Michael J. Gallagher, trainmaster on the Milwaukee, with headquarters at Council Bluffs, died at his home there November 22.

D. B. Johnston, assistant engineer maintenance of way, western region, of the Pennsylvania, with headquarters at Chicago, died at Logansport, November 27.

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Center Plates
Draw Bar Yokes
Knuckle Pins
Air Brake Pins
Brake Jaws
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and
Miscellaneous Forgings

Send us your specifications

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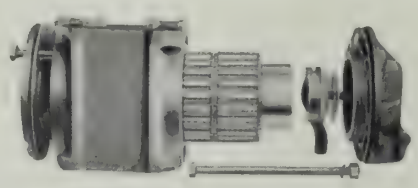

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RAILWAY ROLLER JOURNAL BEARING
More than 450 Melcher equipped cars in Railway service.
RAILWAY MOTORS CORPORATION
DE PERE, WISCONSIN

Why Balsam-Wool is the preferred

Insulation for Gas-Electric Cars

IN cars of this type the extreme lightness of Balsam-Wool has won it special favor. In self-propelled cars—even more than with steam—ton miles of dead haul are important.

But lightness is far from being the only reason for the preference shown Balsam-Wool. It is not only light but *efficient*—it is efficient as a sound deadener as well as a heat insulator.

Balsam-Wool Passenger Car insulation is asbestos covered—highly fire resistant—and reinforced with protective fabric. Its inherent durability means low maintenance costs. It is flexible. Easy to handle and apply by standard methods.

Balsam-Wool Passenger Car insulation meets all requirements for railway mail cars. Measured by any standard Balsam-Wool is the ideal insulation for steel cars of every description. *Write us for samples and detailed information.*

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Insulation Division of Weyerhaeuser Forest Products

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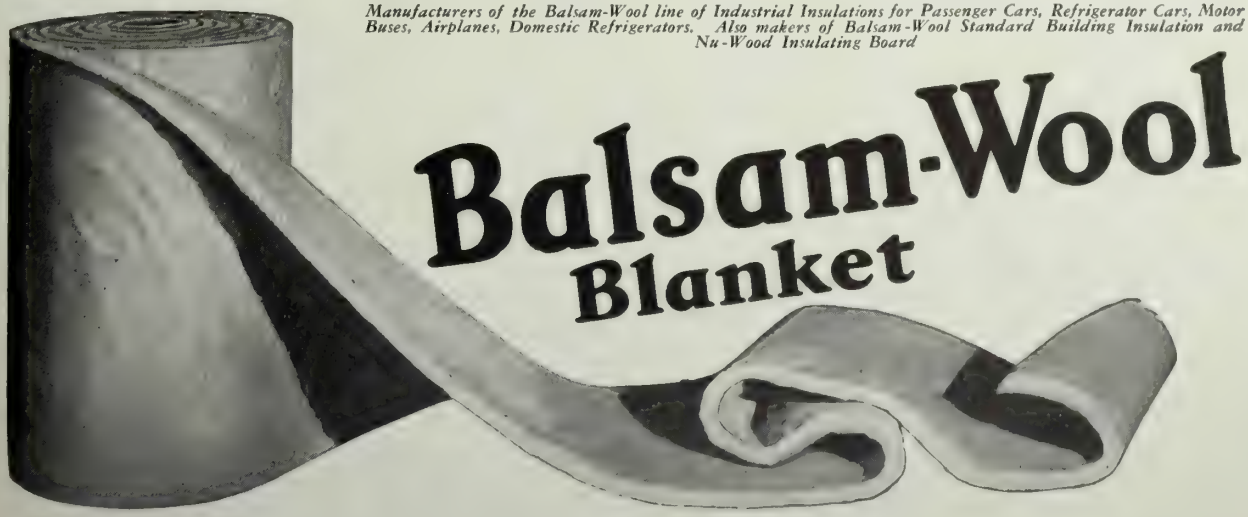
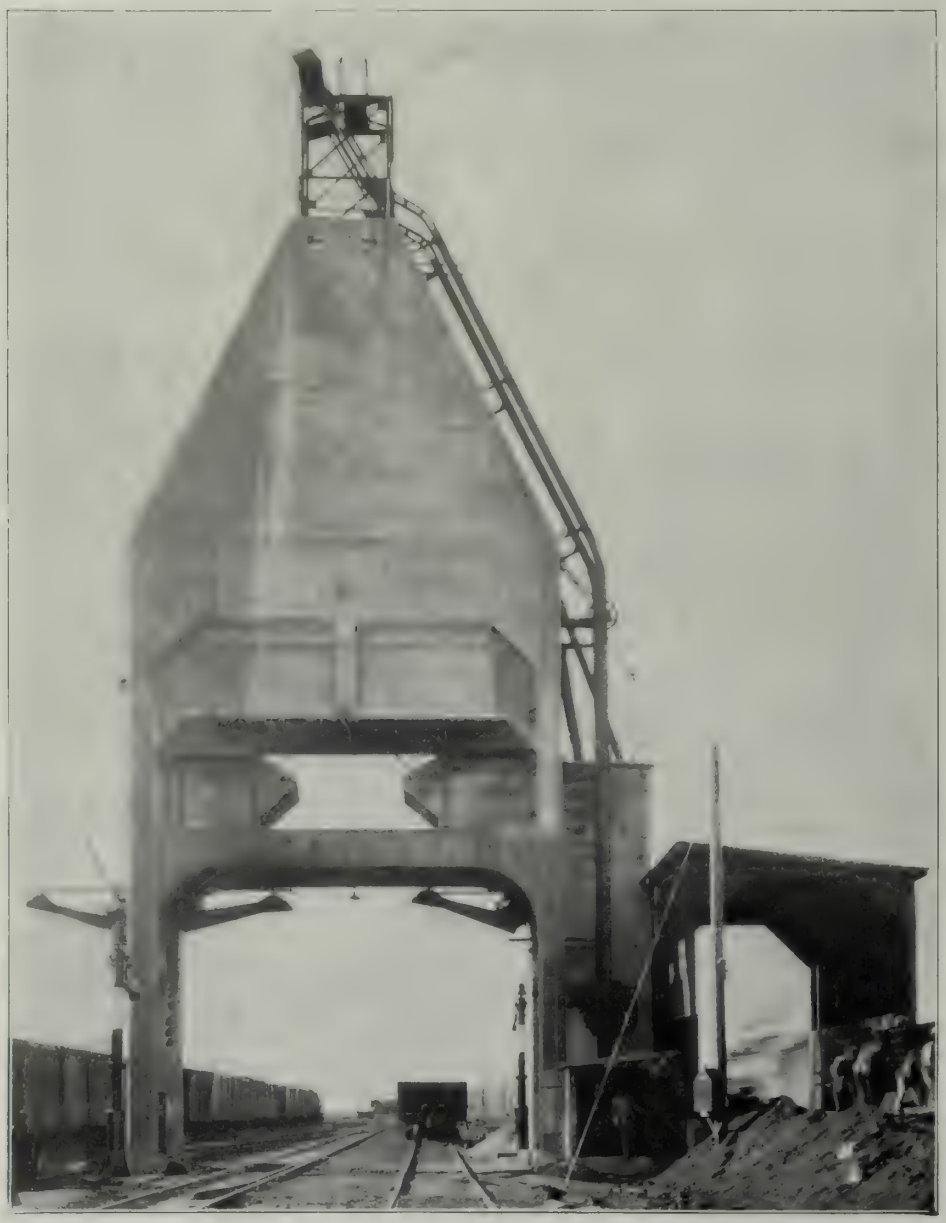
Manufacturers of the Balsam-Wool line of Industrial Insulations for Passenger Cars, Refrigerator Cars, Motor Buses, Airplanes, Domestic Refrigerators. Also makers of Balsam-Wool Standard Building Insulation and Nu-Wood Insulating Board



NEW

"RANDS" PATENT SHALLOW PIT COALING PLANTS



SANTA FE RAILWAY - GREAT BEND, KANSAS - 1928

DESIGNED AND BUILT BY

RS AND COMPANY WRIGLEY BUILDING CHICAGO

ROBERTS AND SCHAEFER CO.

ENGINEERS AND CONTRACTORS
CHICAGO - U.S.A

Transportation

The National Monthly of the Transportation Industry

CALIFORNIA STATE LIBRARY

Vol. IV February 1929 No. 2

MANY of the railroads which have already provided journal boxes equipped with Hyatt Roller Bearings for the Pullmans, diners and coaches of their through trains, are also making Hyattways . . . *Comfort Ways* . . . out of their commuter service.

The Chicago & North Western Railway now has in operation over 120 Hyattized suburban cars and several other Western, as well as Eastern roads, are operating Hyatt equipped commuter trains.

With friction-free Hyatts replacing plain brass journals, there is no more jerky starting, no more sluggish pick-ups. Just smooth, quiet, joltless riding that allows the commuter to read his paper in peace and comfort.

Making the 7:52 more comfortable, too

Locomotives on Hyattways pull more cars per train and permit heavier loading through the use of the new suburban car "three-two" seating arrangements . . . more comfort for all.

In addition to giving their patrons more comfortable rides, railroads are enjoying operating economies, too, from the use of Hyatt Roller Bearings. Maintenance costs are reduced, fuel saved, schedules rigidly kept, and hot box troubles eliminated.

Small wonder that passenger cars equipped with Hyatt Roller Bearings are being operated by more than sixty American and Canadian railroads. Small wonder that these trains are well patronized for the public is fast learning that Hyattways are truly Comfort Ways.

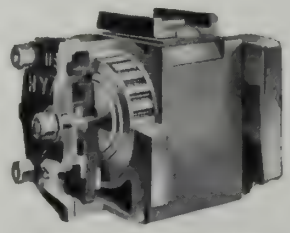
HYATT ROLLER BEARING COMPANY

Newark Detroit Chicago Pittsburgh Oakland

HYATT

ROLLER BEARINGS

PRODUCT OF GENERAL MOTORS



Hyatt Roller Bearing equipped journal boxes meet every A. R. A. requirement for standard equipment or replacement.

NEW!

Schaefer Wearing Plate— Eliminates Wear on Side Frames

Applying the wearing plate to the upper cross member of the hanger.

BY RELIEVING the bracket of all wear caused by the constant swinging of the hanger while the car is in motion, Schaefer Wearing Plate eliminates wear on side frames.

While intended primarily for use with Schaefer Loop Hangers, Schaefer Wearing Plate is designed for A. R. A. Standard Brake Beam Hanger Bracket and can be used interchangeably with either Loop or "U" type hangers.

Schaefer Wearing Plate is readily applied, without special tools. It is locked in place by an A. R. A. ½-inch "U" cotter or other methods of fastening.

Like all Schaefer Foundation Brake Details, this new Schaefer Wearing Plate is made of special wear-resisting steel.

[We shall be glad to send you a Schaefer Wearing Plate and descriptive bulletin, so that you may examine the plate at your convenience and note its many advantages.]

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Provides an Accurate Record of the Movement of any Locomotive or Car

THOUSANDS of these recorders are in use by railroads and have proven of great value because they automatically provide a permanent and indisputable record of:—

1—Speed in miles per hour at all points on trip.
2—Total mileage between any and all points.
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5—Acceleration between any two points.

Write for Bulletin 620, illustrating and describing this device.

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Railroad Department

P-305

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THE FAIRMONT S2
Standard Section Car—Two Types—Wood or Steel Frame

Built to anticipate today's higher standards of Quality *and* Performance

The builders of Fairmont and Mudge Railway Motor Cars are not satisfied with meeting present-day needs in motor-car-service—their *ideal* demands planning ahead for the needs of far-off days to come. As the forward vision of railway engineers is constantly achieving betterments in railway service, so Fairmont devotes its utmost engineering skill, facilities and long experience to the development of motor cars which shall keep step with those improvements.

Over half of all the motor cars in use are Fairmont Products—a tribute to Fairmont efficiency and quality.

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Maintenance Economies Can Increase Net Profit 24%

USE of smaller, lighter locomotives with the Booster to supply power in starting and emergencies, offers substantial savings in maintenance.

Fifteen typical eastern roads show an average maintenance cost of $.317 per locomotive mile.

Locomotive Boosters can reduce this by $.095 per mile by making possible the use of power having fewer drivers to do a given job.

Since the total locomotive mileage per year for these roads is 33,244,330 the possible saving becomes $3,152,264 per year and since the average net is $13,032,390 the saving in maintenance results in an increase of 24.2% in net.

To earn the equivalent of this possible maintenance reduction, the roads would have to move 1,696,055 thousand revenue ton miles.

FRANKLIN

RAILWAY SUPPLY COMPANY, INC.

The Locomotive Booster Capitalizes Idle Weight and Spare Steam

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO MONTREAL

Transportation

(Reg. U. S. Patent Office)

The National Monthly of the Transportation Industry

FEBRUARY, 1929

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AMONG THE MEN WHO DO THE WORK.

LITTLE STORIES ABOUT BIG MEN

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Poor Business

DO you realize how expensive it is to use obsolete or converted road engines in yard service?

With 25 modern Super-Power Switchers, one road increased the capacity of 16 existing yards and the resulting operating savings will pay for the engines in five years.

No railroad is justified in spending large sums of money for the conversion of worn out road engines into "makeshift" switchers, nor can it economically afford to operate old road engines in service for which they were never intended.

LIMA LOCOMOTIVE WORKS
INCORPORATED
LIMA, OHIO

Linking Rail and Air Transport

Up-to-the-Minute Facts About a Great Transcontinental Development in Coordination

By

W. W. Atterbury

President, Pennsylvania Railroad

EARLY last summer, official announcement was made of the formation by the Pennsylvania Railroad Company and leading aeronautical and banking interests of a new company, Transcontinental Air Transport, Inc., to establish a combined rail and air passenger route from New York to Los Angeles and San Francisco, with connecting and subsidiary lines. The following article by General Atterbury summarizes the facts and brings the development of the plans up to date.

THE IDEA of using airplanes for the commercial transportation of passengers is not new to the Pennsylvania Railroad management. We have been studying air transport for a number of years and with particularly close interest and attention in view of the impetus which commercial aviation has received since the close of the World War. During the last five years several of our best equipped officers have been definitely assigned to watch the progress and development of air transport in America, with a view to the possible use of airplanes in connection with our train operation, or in a separate transportation service.

Many of our patrons using Broad Street Station, in Philadelphia, have noticed at the head of the grand staircase, immediately over the information desk in the main waiting room, the bas relief by Karl Bitter, famous Austrian sculptor, entitled "The Progress of Transportation."

The panel depicts the evolution of transport from the days of the ox cart and chariot down to the modern locomotive and steamship. Its most significant feature is the figure of a young child which leads the procession, carrying in its arms a model of an airship. This indicates that even as early as 1895, when Mr. Bitter executed the panel, the Pennsylvania Railroad was "air-minded."

Personally, I received my first definite impression that airplanes could be used for commercial passenger service while serving in France as director general of transportation of the American Expeditionary Forces. Often during my army days I wished for airplanes capable of providing an auxiliary transportation service to be used in rushing troops and supplies to points where they were most needed. So great was the demand for speed and expeditious transportation during those trying times, and so tremendous would have been the contribution of an extremely quick and dependable transportation agency to the winning of the war, that the potential value of such an aircraft service was brought home to me most strongly and impressively.

With the coming of peace I recognized that aviation was certainly destined to become a most valuable ally of commercial railroading if it were properly handled.

Our studies in air transportation have, of course, been greatly influenced by the really marvelous development of the air mail lines in the United States, and the operation of regularly scheduled and dependable passenger-carrying air lines over the continent of Europe. The air mail lines were of great value to us in that they afforded a practical demonstration of just what could be accomplished in this country. The success attending the operation of the European lines, and their tremendous growth and expansion, brought home to us most vividly the vast and even more attractive possibilities of similar service in the United States. It may be of interest here to note that since 1920, travel on the German air lines has multi-

plied 32½ times, and on Dutch lines 26½ times; while England and France also reveal large increases in air travel.

After reviewing the situation very carefully, we decided early this year that the time was ripe for establishing air passenger service in the United States. It was felt that conditions in America were peculiarly adaptable to air transportation, and that there had developed a very real public demand for such service. In the first place, the great distances which must be covered in going from east to west or from north to south in this country afford the airplane the maximum of opportunity to demonstrate its usefulness in the field for which it is best adapted, commercially; that is in materially shortening long, tedious journeys involving many hundreds of miles of travel. Then, too, the fast moving, highly organized life of America, particularly in business, would seem to provide a vast potential market for a high speed, time-saving, yet regular and dependable, air service. It is noticeable in this connection that many of the passengers carried on the European air lines are Americans, showing that our people undoubtedly will patronize an air service which is efficiently operated and in which they have confidence.

Another point to be considered is the fact that the American people have the money with which to pay the higher rates required by air transportation. This is borne out by the popularity of our high speed de luxe extra fare railroad passenger trains. Most of the travel between New York and Chicago and other large centers in our country is on these trains, showing that the American people are willing to pay for speed and refinements in service.

The idea of operating a joint rail-air service was the natural and logical outcome of our studies in air transportation. We wanted to develop a service in which passengers could have confidence and which could be regularly and dependably operated in all seasons and under every condition of weather. We wanted nothing experimental or visionary. The combination of the railroad train and airplane, with all night journeys made by train, seemed to afford the ideal service under present conditions.

The Transcontinental Air Transport, Inc., was formed to bring to fruition these ideas and to place in actual operation a service such as we had visualized. As already announced, this new company, in which the Pennsylvania Railroad is financially interested, will establish next spring a coordinated rail-air route between New York and Pacific Coast cities. The new service will be operated on a regularly established schedule, carrying passengers between New York and the Pacific Coast in two days, approximately half the time of the present all-rail journey. Patrons will board the "American," a de luxe limited train of the Pennsylvania Railroad, in New York at 6:05 p.m., spending the night in a sleeping-car. In the morning they will be transferred to a waiting airplane in Columbus, O., and a daylight flight will be made to Dodge City, Kansas. Stops will be made en route, at Indianapolis, St. Louis, Kansas City, Mo., and Wichita, affording opportunity for rest and relaxation as well as luncheon.

Colonel Lindbergh, Ambassador Herrick and Marshal Foch Just After the Paris Flight.

After dinner at Dodge City, an Atchison, Topeka & Santa Fe train will be boarded for another night's journey in a sleeping car. On arrival at Las Vegas, New Mexico, the next morning, a plane will be boarded for the final lap of the journey to the coast, arriving either at Los Angeles or San Francisco late that afternoon.

This will constitute the regular coast-to-coast service. In addition, announcement has been made that at a later date, not yet definitely fixed, a supplementary through all-air service will be established between Columbus and the Pacific cities, involving night flying. This will afford a still faster trip to passengers requiring the maximum saving of time.

The route selected offers the nearest approach to ideal flying conditions that the country affords. Landing fields are being selected with the utmost care. The planes will be of the most approved type and will be operated by the most highly skilled and expert pilots that can be retained. These factors insure a maximum of safety, comfort and convenience to passengers. With the opening of the route we will be prepared to offer the public a transcontinental service of superior speed, which will merit the confidence and faith of patrons in equal degree with that which has traditionally been bestowed upon standard American passenger train service of the highest grade.

Those with whom we are associated in the management of the new rail-air company are all men of long experience in air transportation. C. M. Keys, president, is also president of the Curtiss Aeroplane and Motor Co., and Colonel Paul Henderson, vice president, is also vice president and general manager of the National Air Transport, Inc., our largest air mail carrier. Colonel Henderson is perhaps better known as the "father" of the air mail, because of his invaluable services when second assistant postmaster general, in charge of air mail.

To secure the very best advice available in the conduct of its operations, the air company engaged the services of Colonel Charles A. Lindbergh as chairman of the technical committee. He has complete charge of the selection of equipment, flying personnel, routes, landing fields, schedules, etc. The operations of the new line will be checked and approved by him in every detail before passengers are accepted for transportation.

Colonel Lindbergh also has been retained as consulting aeronautical engineer to the Pennsylvania Railroad.

—International Newsreel.

The Huge Passenger Plane, Columbus, First of a Fleet of Air Monsters To Be Delivered to the Transcontinental Air Transport Coordinating With the Pennsylvania Railroad.

We felt the need of his expert advice and wide and varied experience, in carrying on the rapidly expanding air transport activities of our company. The colonel's intimate knowledge of every detail of the flying business may be regarded as assurance to the traveling public who use our rail-air service that the factor of safety to passengers will be the primary consideration. His brilliant achievements in advancing aviation have been based on a recognition of this essential, and his most important function, in so far as the Pennsylvania Railroad is concerned, will be to protect the interests of our rail-air passengers.

Another widely known figure in the flying world, Lieutenant C. S. ("Casey") Jones, also has been retained by the Transcontinental Air Transport, Inc., as a member of the technical committee, headed by Colonel Lindbergh.

With over eleven years of actual flying experience, including thirteen months in France during the World War, Lieutenant Jones is one of the notable veterans of the air. In the last year he has been devoting his attention chiefly to the development of passenger flying and the study of its future as a practical means of public transportation. In an extended tour of Europe, he recently made a careful study of the English and Continental air lines for Transcontinental Air Transport, Inc.

Another member of the technical committee is Major Thomas G. Lanphier, who has had a wide and varied experience in army aviation work and is a personal friend of Colonel Lindbergh.

Major Lanphier is a graduate of West Point and has had many important commands in the army air service. He was the unofficial army observer and aide in the exploration trip to the Arctic, undertaken by Captain Wilkins in the spring of 1926. Just previous to his appointment on the technical committee of the new air company he was an army flight commander.

The fact that the personnel of Transcontinental Air Transport, Inc., is made up of men who have spent

—International Newsreel.

Showing How Comfortable a Passenger May Be In the Big Columbus, Shown At the Top of the Page.

years in the flying business, and are thoroughly familiar with every detail of its operations, will insure that only the most carefully tested and approved practices in air transport, worked out during many years of study and research, will be adopted for the new transcontinental rail-air line.

Operations will begin with the most modern American aircraft. These will be tri-motored, all-metal Ford planes, carrying 12 passengers each. They will have a maximum speed of 135 miles an hour, a cruising speed of 115 miles an hour, and a scheduled flying speed of approximately 100 miles an hour. Any one of the three motors will be capable of keeping a plane in the air, although, of course, at a reduced speed. Even with all the motors stopped, the planes would have a very wide gliding range, insuring a wide choice of landing places.

Orders have just been placed with the Ford Motor Co. for ten planes of this character, which will constitute the first equipment for the transcontinental service. This represents the largest single purchase yet made of the Ford tri-motored ships. Their total cost, with accessories, will be approximately $800,000. The Ford Company expects to deliver the entire order by February 1, 1929.

The decision to purchase these planes was made only after the most exhaustive tests of all types available. Their choice is based upon studies which have been carried on since July 1 by Colonel Lindbergh and the members of the air company's technical committee. Colonel Lindbergh, as chairman of the committee, has reported to C. M. Keys, president of Transcontinental Air Transport, Inc., as follows:

"I recommend Ford tri-motored Wasp transports as being the type best suited for passenger service for transcontinental air transport."

In his capacity as consulting aeronautical engineer, Colonel Lindbergh has similarly reported to the Pennsylvania Railroad.

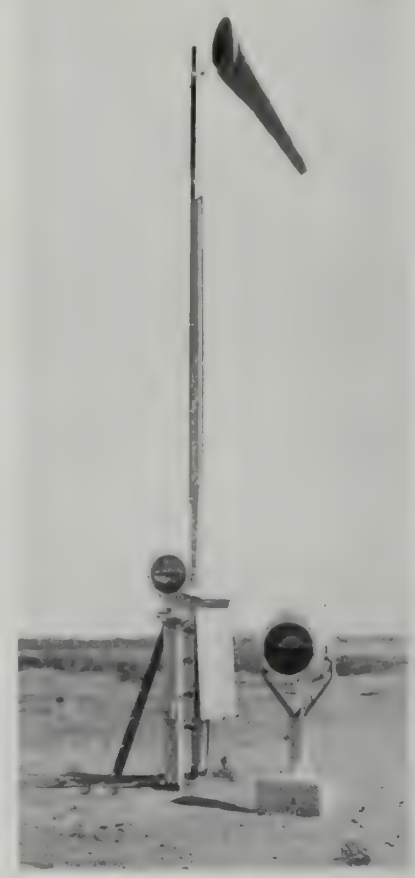
The thoroughness, technical skill and care which Colonel Lindbergh and his committee have devoted this summer to the work of testing out planes available for our service have been most commendable. I have complete confidence in their recommendations and such future ones as they may make.

The Ford planes which we have ordered will be equipped with three Pratt-Whitney Wasp motors, developing 400 horsepower each, at 1900 revolutions a minute. These motors have been chosen for their reliability, dependability and particular adaptation to our service.

The Wasp motors are of the air cooled type. The cylinders are nine in number and their arrangement is radial, or like the spokes of a wheel, which is now customary with the majority of airplane motors. A direct drive, having no transmission gears, is used. They develop one horsepower for every 1.67 pounds of weight. The cylinders are of aluminum and steel.

Each plane will be manned by a pilot, mechanic and steward. Both the mechanic and steward will be capable of flying the ship. The steward will look after the comfort and convenience of passengers and be of general assistance. Every device known to the art of airplane construction will be embodied in the equipment of these ships, including complete apparatus for radio transmission and reception.

A special safety feature of the service will be the establishing of weather-reporting stations every 50 miles along the line of flight, so that pilots will be informed, by radio, of weather conditions within a radius of 50 miles throughout the entire route. These arrangements will make it possible for the pilot to know always just what weather he will be called upon to face. No weather condition will surprise him or take him unawares.



The "Sock" Shows the Pilot Which Way the Wind Is Blowing

The landing fields will be especially designed and equipped to afford every comfort and convenience to the traveling public. They will be located wherever possible along the railroad right-of-way. Colonel Lindbergh and his committee are giving special attention to this very important phase of the service.

Tickets for the air journeys will be sold in conjunction with railroad transportation at all Pennsylvania Railroad stations and ticket offices. The prospective passenger will expend no more energy in arranging his trip than that required to prepare for an all-rail journey.

Many auxiliaries and feeders are being planned for our main transcontinental rail-air route. The first of these was established on September 1 between Chicago and the twin cities, Minneapolis and St. Paul. It is now in successful daily operation between these cities, connecting on regular schedules with transcontinental trains both east and westbound. This service is being operated by Northwest Airways, Inc., which is associated in interest with Transcontinental Air Transport, Inc., and the Pennsylvania Railroad.

Plans for the Chicago-Twin Cities rail-air service were developed by the technical committee of Transcontinental Air Transport, Inc., under the leadership of Colonel Lindbergh. The planes and routes used in this service were subjected to the same close study and scrutiny as those which will go into the operation of the main New York-Los Angeles-San Francisco line.

The new rail-air route to the Northwest saves an entire business day on through trips between eastern cities and points west of Minneapolis and St. Paul. Approximately eight hours are cut from the time now required to make a train journey between Chicago and the Twin Cities. The westbound plane flies from Chicago to St. Paul in exactly four hours and to Minneapolis in four hours and ten minutes. Eastbound, the time is three hours and 40 minutes from Minneapolis to Chicago and three hours and 30 minutes from St. Paul to Chicago.

Passengers traveling from New York, Philadelphia, Baltimore and

Washington to the Twin Cities and Pacific Northwest, who desire to use the new airplane service from Chicago to St. Paul and Minneapolis, leave New York on the Pennsylvania Railroad's "Manhattan Limited" at 6:15 p.m., Eastern Standard Time, North Philadelphia 8:05 p.m., Washington 7:05 p.m., Baltimore 8:02 p.m., arriving at Englewood Station, Chicago, 1:40 p.m., Central Time, the following day.

Connecting airplanes leave Cicero Field, Chicago, at 2 p.m., arriving St. Paul 6 p.m., Minneapolis 6:10 p.m. At the Twin Cities convenient connections are made with the evening limited trains on all railroads to the Northwest.

Eastbound, planes leave Minneapolis at 8:30 a.m., and St. Paul 8:40 a.m., following the arrival of the morning limited trains from the West, arriving Cicero Field 12:10 p.m.

Passengers for Philadelphia and New York leave Chicago, Englewood Station, on the Pennsylvania Railroad's "Broadway Limited" at 12:57 p.m., Central Standard Time, arriving at North Philadelphia 7:54 a.m., and New York at 9:40 a.m., Eastern Standard Time. The "Liberty Limited," leaving Union Station, Chicago, at 1:10 p.m., and Englewood Station 1:27 p.m., arriving Baltimore at 8:03 a.m., and Washington at 9 a.m., affords an ideal connection for Baltimore and Washington passengers.

The Amphibian Plane of the Western Air Express Carrying Passengers Between Los Angeles and Catalina Island.

Tickets for the Chicago-Twin Cities rail-air service are sold at all the principal ticket offices and agencies of the Pennsylvania Railroad. Reservations for the service are made through these offices in the same manner as Pullman space is now reserved.

As time goes on it is our purpose to develop many other auxiliary and feeder lines similar to the Northwest Airways, supplementing or coordinated with the main transcontinental route between New York and the Pacific Coast.

For a long time to come, I believe airplanes will serve in an exclusive field of their own, providing exceptionally fast transportation at a necessarily higher rate than that charged by the railroads and other forms of transport, and appealing to those whose needs or tastes are beyond the usual.

I do not feel that the airplane will measurably compete with the train, the steamship or the automobile, but that it simply will stimulate a demand for a new form of transport and will very efficiently meet that demand.

K.L.M. (ROYAL DUTCH) AIRLINES

LONDON—ROTTERDAM—AMSTERDAM—(BREMEN)—HAMBURG—COPENHAGEN—MALMO

From LONDON

		A.M.	P.M.
London—Hotel Victoria	dep.	9.00*	1.00†
Croydon Aerodrome	dep.	10.00	2.00
Rotterdam—Waalhaven Aerodrome	arr.	12.35	4.35
Waalhaven Aerodrome	dep.	12.50	4.55
		P.M.	
Amsterdam—Schiphol Aerodrome	arr.	1.15	5.20
Schiphol Aerodrome	dep.	2.00	———
Bremen—Nenenland Aerodrome	arr.	3.10	
Nenenland Aerodrome	dep.	3.25	
Hamburg—Fuhlsbuttel Aerodrome	arr.	4.00	
Fuhlsbuttel Aerodrome	dep.	4.20	
Copenhagen—Aerodrome	arr.	6.10	
Aerodrome	dep.	6.35	
Malmo—Aerodrome	arr.	6.50	

To LONDON

		A.M.	
Malmo—Aerodrome	dep.	8.30*	
Copenhagen—Aerodrome	arr.	8.45	
Aerodrome	dep.	9.05	
Hamburg—Fuhlsbuttel Aerodrome	arr.	11.05	
Fuhlsbuttel Aerodrome	dep.	11.25	
Bremen—Nenenland Aerodrome	arr.	11.20	
Nenenland Aerodrome	dep.	11.35	
		P.M.	
Amsterdam—Schiphol Aerodrome	arr.	2.30	A.M.
Schiphol Aerodrome	dep.	3.05	9.00†
Rotterdam—Waalhaven Aerodrome	arr.	3.30	9.25
Waalhaven Aerodrome	dep.	3.45	9.45
			P.M.
London—Croydon Aerodrome	arr.	6.05	12.05
Hotel Victoria	arr.	7.05	1.05

* From April 23rd to September 1st. † From May 15th to September 29th.

Daily, Sundays excepted. FARES: Rotterdam or Amsterdam, £4 single; Bremen, £7; Hamburg, £8; Copenhagen, £11 6s.; Malmo, £12 3s.

LONDON—AMSTERDAM (Non-stop)

From LONDON

		P.M.
London—Hotel Victoria	dep.	4.00
Croydon Aerodrome	dep.	5.00
Amsterdam—Schiphol Aerodrome	arr.	8.00

To LONDON

Amsterdam—Schiphol Aerodrome	dep.	Noon
		P.M.
London—Croydon Aerodrome	arr.	2.45
Hotel Victoria	arr.	3.45

Daily, except Sundays, from May 15th to September 29th.

The Average Reader, Not a Great Many Years Ago, Might Have Thought This Royal Dutch Air Line Time Card a Far-Fetched Novelty. But the Dutch Company Is Making a Success of the Business.

What the Papers Say

A View Showing Part of the Stores Department of the Pullman Company in Chicago.

When the average reader of this editorial pays his 50 per cent surcharge for sleeping car or parlor car service, says the Chicago Journal of Commerce, he is likely to feel in sympathy with the effort which will shortly be made in congress for abolition of the surcharge. But being a reasonable man he will be willing to give heed to reasons supporting the contention that such congressional action, even though it would directly save him a few dollars, would be both unwise and unjust.

There are three main reasons in support of this contention. The first is that congress, having confided to the Interstate Commerce Commission the regulation of rates, should not override any rate decision made by the commission after determination of the facts. Congressional rate making not only is usually bad in itself but threatens the ultimate safety of our entire system of regulation by the commerce commission. If congress overrides one decision of the commerce commission it may override a thousand. Obviously congress will act from political motives. Is it wise for the United States to institute a comprehensive political regulation of the rate structures of the railroads? Does such a course promise efficient railroad service? Does it promise an ultimate benefit to business, which necessarily depends on the railroads?

The second reason against abolition of the surcharge is that the surcharge is payment for service rendered. There are a number of services rendered by the railroads in behalf of Pullman passengers which day coach passengers do not require. Most of these services, being of a technical nature, go unnoticed by the passengers in whose behalf they are rendered. Suffice it to say that the principal additional service is the transportation by the railroads of twice as much weight for each Pullman passenger as for each day coach passenger.

The third reason against abolition of the surcharge is that it would plunge the railroads into heavy deficits for their passenger services. Indeed, the western railroads already show such a deficit.

A recent report by the director of the bureau of statistics of the Interstate Commerce Commission discloses that the railroads of the country last year made a net profit on passenger service of $29,691,000. They received from the Pullman surcharge $40,195,000. Deduct this sum from the $29,691,000 net profit, and the result is a deficit of $10,504,000.

The Pullman surcharge, therefore, is absolutely necessary. If the senators from your state and the member of congress from your district vote to repeal it, they will vote to compel the railroads of the country to carry passengers at a heavy deficit. They will vote to give you a present of a few dollars at the expense of the railroads. But that present will not eventually be beneficial to you. For railroad deficits cannot promote the country's prosperity.

Bet It Was General Atterbury

This is certainly an age of courtesy so far as corporations are concerned, says the Wall Street Journal. We have read all about the courtesy of corporations and their officials toward shareholders and now comes an interesting letter from a railroad president to a worker as an example of the same spirit in actual corporation circles:

Dear Mr. ———:

The transportation you recently requested has been forwarded to your pass bureau and should be in your hands shortly.

We are glad members of your family are going to ride on the road. We hope that while on our road they will avail themselves of the Kindly Courteous Service we are endeavoring to maintain and that they will feel free to call upon our people for anything we can do to make their trip a pleasant one.

Yours very truly,

This letter was signed by the president and was sent to a baggageman at an upstate station.

Engineers in the Making on the D & H

By J. T. Loree

V. P. & G. M.

The Business-Like Office Car for Student Engineers; Part of a Train Equipped and Used Every Summer in Camp Provided by the Delaware & Hudson Company.

THE RAIL lines of the Delaware & Hudson Co. traverse parts of Pennsylvania, New York and Vermont, most of the mileage being in the state of New York. The main lines, about one-third of which have two or more tracks, may be said to extend from Wilkes-Barre, Pa., on the south and Binghamton, N. Y., on the west, in a northerly and easterly direction, through Albany, Schenectady and Troy, to the international boundary at Rouses Point, N. Y. Branch lines, of which there are 14, reach various places of importance and serve directly the Adirondack Mountain regions, while the company's steamboats perform a regular service through Lake George and Lake Champlain. Connections are made at the termini with many other rail lines, thus reaching the whole of the United States and Canada, and the company's passenger trains operate between New York City and Montreal, Canada.

Freight traffic of a diversified nature, developed by numerous industries along the line, as well as from an extensive fertile countryside where agriculture and kindred pursuits predominate, provide the principal source of revenue from the company's operations. Of all the freight transported about 48 per cent is anthracite coal, mined in the Lackawanna Valley and along the rail lines for about 40 miles, between Wilkes-Barre and Carbondale, Pa.

During the year just closed the market for anthracite has not compared favorably with previous years. This for various reasons, not the least of which has been unusually mild winter weather. Consequently, while the demand for transportation of other commodities has been maintained, the total tonnage handled shows a falling off as compared with 1927, the facilities available have not been used to anything like their capacity. There has been a surplus of cars and locomotives. So far as they can be estimated the prospects are encouraging and we look for, at least, a moderate increase in 1929, because of generally sound business conditions throughout the territory, while a better market is expected for anthracite coal.

Less than 20 per cent of the company's revenues come from passenger and related traffic. For several years the volume of this traffic, as indicated by the total passengers carried, has decreased, and 1928 was no exception. Undoubtedly this has been brought about by the use of automobiles and competition from motor coach lines, of which there are some 50 operating in competition with the train service, which the company does or could give if the demand existed. Alongside or near to both the main and branch lines excellent hard surfaced highways are available, so that we are particularly susceptible to motor vehicle competition for short haul passenger traffic, and to some extent also for package freight. On the other hand, while the number of persons traveling has decreased, the miles traveled per passenger has increased.

The principal passenger service is between New York and Montreal. An outstanding development during the year has been the continued operation of a fast day train between New York and Montreal during the entire year, which formerly was available only during the summer months. The prospects are that in 1929, through traffic as typified by the New York-Montreal and the New York-Adirondack Mountain service will increase, while branch and local trains will continue to show a falling off in patronage.

In the matter of methods of train operation, there have been no outstanding developments which can be identified with 1928, or are any contemplated for 1929, although along the lines of intensive operation excellent records have been made in such important matters as size and tonnage of freight trains, fuel perform-

New Station At Merriam, N. Y. In 1928 the D. & H. Tore Down or Abandoned 80 Structures Without Impairing the Public Service in Any Way.

ance of locomotives, miles per freight car per day, time of freight trains between terminals, etc.

No new locomotives have been placed in service, but efforts have been directed toward the conversion of locomotives already in service into more powerful units with excellent results.

Considering for a moment the freight car equipment, a program adopted about seven years ago for rehabilitating freight cars continues. During the past year 400 units were reconditioned. By this is meant such improvements as reenforced underframes, draftgears, ends, door fixtures, and so forth. Some new passenger cars have been added, but in the main, the improvements are along the lines of remodeling and strengthening older equipment to suit present-day requirements.

For the more efficient and economical maintenance of cars of all kinds, grouping of shop facilities has been accomplished, thus centralizing the work so that heavy repair work is now performed at one point where previously forces and equipment were maintained at four places. Obviously such centralization means better supervision and better results all around.

A reclamation plant for reclaiming axle box packing and purifying the oil extracted therefrom so it can be used again has been developed.

Terminal yards have been extended and rearranged. More passing tracks have been provided where needed to facilitate the movement of maximum traffic. An obsolete branch has been entirely abandoned. Terminal improvements and track extensions will continue throughout the coming year.

It has been evident for a long time that the diminishing supply of suitable timber for track tie purposes has made the question an important one. To meet this changing condition the method of making ties from scrap rail has been resorted to and has proved so satisfactory that last year a complete fabricating plant, composed of special automatic electrical arc welding equipment, was installed with a capacity of about 70 ties a day. It is believed that during the year about 14,000 steel ties will be constructed, about 8000 of which will be installed.

As time goes on stations and other buildings become obsolete and are abandoned, destroyed or moved to other locations. During 1928 a total of 79 buildings were abandoned for various reasons without affecting the efficiency of operation or service to the public.

On the payrolls of the company there are about 12,000 officers and employes, over 2,000 of whom are in engine and train service. The human interest side in employment receives constant attention. Among the activities along these lines are those of the safety organization, instruction in the first aid to the injured and Boy Scout activities. During the year in train service, the number of casualties was 22.4 per cent per million locomotive miles, or a decrease of 43 per cent as compared with 1918, the year just prior to that in which the safety department was organized. As to other accidents, the record was 11.5 employe casualties per million man hours worked, a decrease of 71 per cent as compared with 1918. This enviable record was made possible by personal contact and educational work conducted by the superintendent of safety and his assistants, and by committees of employes. During the year 182 employes earned and received first aid certificates, making

A Stretch of Track Laid on Steel Ties Fabricated in the Company's Own Plant. Looks Permanent, Doesn't It?

a total of 906 employes throughout the system who have been examined and qualified by the company's surgeons to render first aid to the injured.

Boy Scout activities, begun in 1927, have continued throughout the year with conspicuous success. Under the charge of a Boy Scout executive, the work of conducting community councils, composed of representative citizens, has been organized and in this way keen interest is developed. These community councils are affiliated with the National Boy Scouts of America, in accordance with their regulations. The safety and accident prevention feature of the Boy Scout manual is an important part of the Boy Scout procedure, and it may be said that these activities are proving a very valuable means of reaching the public in accident prevention work. Also they develop an asset to the company by maintaining and fostering present satisfactory relations with our patrons and the public generally in various localities, which the railroad serves. Furthermore, a wholesome influence is exerted early in life on boys who in the future may become employes of the railroad company.

Dining Car on the Delaware & Hudson's Summer Camp Train Equipped For the Student Engineering Corps.

In 1928, as in previous years, a "Student Camp," so-called, has been maintained, situated as far as possible from the larger centers of population. This is an activity of the maintenance of way department. Students are recruited from various engineering colleges through their deans of engineering. The camp consists of sleeping cars, a dining car, a kitchen car, a supply car, also a drafting and tool car, which houses the electrical generating plant, water storage, tank, pump, etc. The equipment is composed of passenger coaches, altered and arranged internally to serve the purpose, equipped with shower baths, steel bunks, individual lockers and hot water heat. Indeed no effort is spared to make the camp as complete, convenient and comfortable as possible. Forty-three students were enrolled this year from three polytechnic institutes, seven American universities and one Canadian university. The members actually ran preliminary and location surveys, including alignment of an existing track for about 15 miles, plotting their field notes and drawing up their maps in the drafting car.

The Student Engineering Corps From Various Institutions Putting in Part of the Summer in the Camp At Thurman, N. Y. Maintained by the Delaware & Hudson Company.

The company does not operate any motor trucks or motor coaches. It is true for certain classes of light commodities within a radius of from 50 to 60 miles motor trucks are being extensively used, thereby hauling freight which at one time was carried by the rail line. Similarly motor coaches and private automobiles are carrying short haul passenger traffic to such an extent that it has been necessary to reduce materially the number of passenger trains which, a few years ago, were necessary for this purpose.

As to the alleged growing use of airplanes. It is conceivable that as times goes on and air service becomes a safer means of transportation than it now is, persons who can afford to do so will use planes in preference to passenger trains. At present, however, their use in this territory is confined almost exclusively to the carriage of mails, and competition is not presently noticeable.

A Brakeman Dies

An act of heroism cost the life of Fred Dugan, 39, brakeman for the C. & E. I., near Evansville, Ind., New Year's Day.

Cutting and Assembling Board for Steel Ties.

Riding the head end of a string of box cars, Dugan saw an automobile approaching a crossing apparently with little heed to the train. His cries were unheeded so Dugan climbed down the ladder to the box car and waved and shouted to those in the automobile.

The driver turned the car just in time to avoid being hit by the train, driving his car parallel to the tracks. Dugan's body was crushed between the automobile and the side of the box car. He died almost instantly.

How to Reduce Damage

Simply as interesting information for careful car handling committees the freight claim division of the A. R. A. is broadcasting a bulletin sent out by the Southern Pacific recently. The bulletin, under the head of "Don'ts", was prepared by E. P. Ragsdale, traveling engineer, and W. D. Turbeville, chief clerk of that road. It is addressed to enginemen:

Don't leave roundhouse without testing air brakes on engine.

Don't leave the yard until train brakes are properly tested.

Don't leave the yard with excessive leak in brake pipe.

Don't allow engine to slip as slack is changed harshly, and this can be avoided by using sand; that is what it is put on the engine for, and if used will result in less rough handling of train and damage to rail.

—Underwood & Underwood

Arlington Memorial Bridge Over the Potomac at Washington, Now About Three-Quarters Finished. It will Connect the Lincoln Memorial With the Virginia Shore Near Arlington Cemetery.

The Road From Yesterday to Now

Cleveland's Highway Meeting

By W. B. Fiske

A General View of the Main Floor Exhibit in the Cleveland Auditorium; American Road Builders' Convention.

EIGHT ACRES of floor space covered with exhibits of modern day machinery and road building equipment greeted the thousands of visitors at the Public Auditorium, Auditorium Annex, and Central Armory, Cleveland, where the 26th yearly convention of the American Road Builders' Association was held January 14 to 18.

One of the outstanding characteristics of the big exhibit was the prevalence of action movies or working models in miniature of the various machines portrayed. Mixers, portable asphalt plants, cranes, graders, trailers, trucks, snow plows, shovels, ditchers, crushers, excavators, snow loaders, hoists, drag lines, trench hoes, besides the smaller tools and accessories, all were shown developed to present day efficiency. A model display erected on the stage of the auditorium showed a life-like arrangement of roads, rails, water and surrounding countryside. Here were found examples of road construction, including earth, traffic bound stone, traffic bound slag, traffic bound gravel, surface-treaded macadam pavement, penetration macadam pavement, brick pavement, concrete pavement, sheet asphalt and rock asphalt pavement. Included, too, were the trucks and road building equipment in operation.

Another outstanding feature of the exhibits was the historical display sponsored by the U. S. bureau of public roads. In separate booths were portrayed the developments from 1904 to the present. It was titled "The Road From Yesterday to Now."

In 1909 there were 600 miles of road with better than macadam surface, 190,000 miles of surfaced roads, 312,000 automobiles but no trucks. This was the period of the steam roller and the road scraper, while asphalt was the main weapon in road repair.

There were 1,710,000 motor vehicles in 1914; 14,400 miles of better than macadam roads and 257,000 miles of surfaced roads. The age of wide roads and the enclosed car had arrived. In 1921 we had 10,463,000 motor vehicles of which 980,000 were trucks. The country had 36,000 miles of better than macadam roads with 388,000 miles of surfaced roads. At this time the federal aid highway system was laid out with a highway department in every state. It likewise represented the coming of the motor truck as a real factor in transportation.

In 1925 one-seventh of all roads were better than macadam with 521,000 miles of surfaced roads, 17,500,000 automobiles and 2,440,000 trucks. Highway construction now took on an atmosphere of mass production.

There were 626,000 miles of surfaced roads in 1928; 21,000,000 automobiles, 3,000,000 trucks, and

Stage Exhibit of Model Highway With Surrounding Features and Different Types of Surfaces, Shown in the Cleveland Convention, January 14-18.

90,000 buses. Pavements grew to a 40-foot width, standard markers were erected, and roads were built of dustless and mudless design. Overhead bridges became the rule, transcontinental sleeping buses came into use, and eight-wheel rubber tired trucks were made for freight and express. At this period there was one motor car for every six persons in the United States, but despite this fact and the great development in road making, less than 50 per cent of the state highways in the United States are surfaced.

In the Pan-American division of the association Senor Antonio Madrazo of Mexico was chairman. In Mexico a great federal road program has been outlined for the period of 1929 to 1933. Federal roads are at present developed principally in one small area in the southern part. As a result of the convention, Pan-American representatives will send student engineers to this country and into American fields for practical experience.

Officers of the American Road Builders' Association were elected for 1929 as follows:

President, Frederic A. Reimer, consulting civil engineer, East Orange, N. J.

Vice President, northeastern district, W. A. VanDuzer, assistant chief engineer, Pennsylvania department of highways, Harrisburg.

Vice President, southern district, D. B. Dimick, Birmingham, Ala.

Vice President, central district, S. F. Beatly, president of the Austin-Western Road Machinery Co., Chicago.

Vice President, western district, Samuel Hill, honorary life president of Washington State Good Roads Assn., Seattle.

Treasurer, James H. MacDonald, New Haven, Conn.

Directors: J. H. Cranford, Washington, D. C.; Arthur W. Dean, Boston; J. S. Helm, New York; Wm. Ogden, Chicago; W. R. Smith, Meriden, Conn.; Frank Terrace, Seattle. Secretary-director, Charles M. Upham of the association.

To Reduce Grade Crossing Accidents

Taking into consideration the insurmountable difficulties in preventing grade crossing accidents, which take a heavy toll of motorists' lives, E. W. James, of the United States bureau of roads, outlined a plan for grade crossing elimination at the constructors session of the annual convention of the American Road Builders' Association at Cleveland, January 17.

James said it is impossible to eliminate all grades, or to make trains or motorists stop at crossings, and suggested:

A definite classification of crossings, based upon the relative value to the traveling public in their elimination; the classification would be based on a complete census at each crossing of the automobiles and trains that pass.

A definite annual program by each state and railroad for the elimination of certain grade crossings of the highest classification.

Restriction of the authority to create new grade crossings. With reference to this he said that "the record of grade crossings in existence shows that the number is actually increasing in spite of a constant and growing program of elimination."

A definite progressive program in each state for installing safety warning devices rigidly standardized.

Picked Up a Lawsuit

A few more lawsuits like that on trial at Seattle recently, and the offer of a motorist to pick up pedestrians on the highways will be an extinct courtesy.

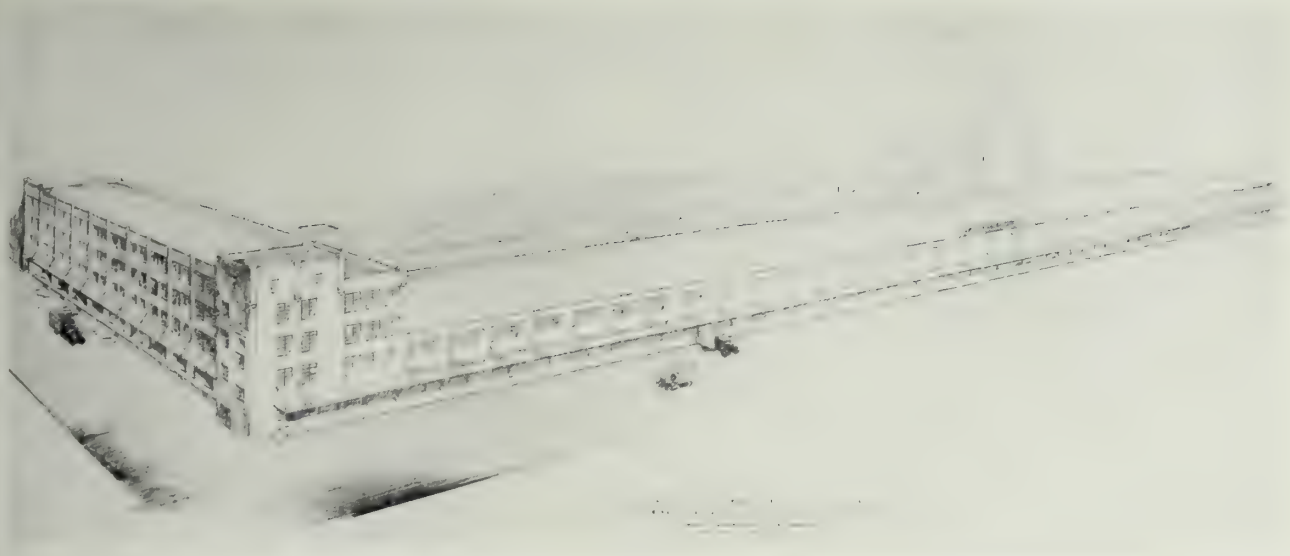
A young man of Deer Park, in Spokane county, borrowed an automobile from an obliging Seattle friend, drove out into the country, overtook two strangers footing it along the highway and obligingly picked them up for a ride.

An accident followed; the pedestrians were injured and now demand $20,000 damages from the driver of the borrowed car and its owner.

The moral in that episode is plain and will not be lost upon prudent motorists.—*Spokesman Review.*

The Deadly Monoxide

Although most carbon monoxide deaths occur during the cold weather months, this deadly, odorless, colorless gas takes its toll during the warm weather also. A young man was found dead in his machine recently, as a result of having sat in his car to eat some sandwiches, with the windows closed and the motor running. A wind from the rear drove the fumes from the exhaust up through the floor boards.



Architect's Drawing of the New Express Building, Just East of the Union Station At St. Louis. The Structure Is Now Almost Completed.

Enlarging the St. Louis Terminals

Important Improvements Ready This Summer

By M. C. Moore

RAPID progress is being made on the $5,000,000 enlargement and improvement program of the Terminal Railroad Association of St. Louis at the St. Louis Union Station. The improvements, designed to increase the passenger, mail, baggage and express facilities fully 60 per cent, will include ten new station tracks, the substitution of one mammoth building for five express buildings, a new baggage building and increased coach storage yards, all of which will represent the last word in railway station equipment with efficiency, convenience and durability stressed in every detail. The improvements now being made will place this large terminal in condition to handle all increased traffic for the next 25 years, according to Henry Miller, president of the association.

The construction of the new facilities is in charge of the Dwight P. Robinson Co. of New York and St. Louis, which is making all possible haste in completing the various units. Excavation work on the ground where the new express building now stands, practically complete, began July 27, 1928, which shows the rapid progress the engineers and their forces are making.

The Terminal Railroad Association of St. Louis serves the St. Louis industrial district embracing St. Louis, Mo., East St. Louis, Madison, Granite City, Illinois, and a part of St. Louis County, Mo., a zone of 150 square miles in which there are about 1,000 miles of railroad terminal facilities.

This is the second time the terminal has enlarged its station facilities. The station was opened in 1894 with 32 tracks. The facilities were enlarged in 1904 and the big subway system was built at a cost of $2,000,000.

In recent years a number of the lines have added many additional cars to their regular trains. The constantly increasing power of the newer types of locomotives makes this possible. One of the longest of these trains now operating in and out of the Station is the Frisco's famous Meteor, which frequently carries 16 or 17 steel sleepers and coaches. The ten new station tracks to be laid, ranging from 1350 to 1720 feet in length, will provide ample room for the longest of these trains, and relieve a situation which heretofore has been a difficult one for the terminal.

The work also includes the building of an immense structure with a 220-foot frontage and a depth of 1,700 feet to care for the express business. The office section of this capacious structure, fronting on Clark avenue, east of the present yards, will be four stories high, while the remainder will be two stories. The latest devices for refrigeration and handling of express shipments are being installed, and there will be ample trackage for quick service to and from the building. The space now occupied by the five old buildings will be covered with tracks for the leads to the new part of the station. The present baggage building is being torn down to make room for the extra-length tracks and the new baggage building is now being built at the corner of New Twentieth street and Market, old Twentieth street having been taken over to permit the extension of the station structure and track layout. The terminal association dedicated a new street to the city in return for the old one taken in the station's march westwardly. The new baggage building will contain all the latest devices for quick and efficient service and will have a much greater capacity than the old plant.

One of the greatest handicaps

The New Express Building At St. Louis As It Appeared January 29, 1929, Looking Northeast.

which the terminal has been working under has been cramped coach storage yards. The improvement plan gives the association a large increase in this field just west of the station, and a new yard with ample capacity has been constructed in the Ranken district nearby, to provide space for the coaches formerly stored on the ground covered by the new express service house. This gives the St. Louis lines a succession of coach yards extending from Twenty-first street to Ranken avenue, a distance of 13 city blocks, and these yards are reinforced by like facilities in other parts of the terminal district.

The umbrella type covering will be used in the new addition to the station, and this section will take care of most of the extra long trains with its ten new tracks. This will bring the total to 42 tracks extending from one end of the station to the other. The Midway in the new, will conform to that in the old structure, as will the architecture of the Market street front. With the westward addition, the Union Station will have a total frontage on Market street of 750 feet. The city of St. Louis contemplates widening Market street, also a Plaza fronting the station which, with new hotels and other improvements planned on the surrounding property, will give the station an artistic front and convey an impressive appearance to visitors.

The Terminal Association of St. Louis operates what are believed to be the largest system of unified freight and passenger terminals in the world. These are operated on a cost basis, and no dividends are paid. The stock is held in equal shares by the Frisco, the Missouri Pacific, the Pennsylvania, the Wabash, the Big Four-New York Central, Louisville & Nashville, Baltimore & Ohio, the Alton, Illinois Central, Rock Island Lines, St. Louis-Southwestern, the Southern Railway, the Burlington and the Katy, designated as proprietary lines. Non-proprietary lines serving the St. Louis gateway use the facilities on the same terms accorded owning companies.

The terminal interchanged 2,708,989 loaded freight cars between connections in 1928, the highest record ever achieved in the St. Louis gateway. From 250 to 300 passenger trains were handled in and out of this station daily in 1928.

The terminal association is an extremely important asset for the city of St. Louis. It has a yearly pay roll of more than ten million dollars for its 6,000 employes, spends for materials and supplies more than $3,000,000; has a fuel bill of more than $1,250,000 a year and at present has about 500 miles of track. It owns and operates 175 switch engines, and is the largest single taxpayer in the Greater St. Louis district. The association maintains large shops for light running repairs for lines it serves and looks to the repairs on passenger and freight cars. It also distributes the empty freight cars between the lines and shippers, to do which it has to maintain elaborate facilities for handling freight and passenger equipment.

Officers of the terminal association who have carried out the plans of those who visioned the importance of St. Louis as a gateway to the Southwest and who have assisted in carrying out the improvements planned to handle increased traffic for the next 25 years are Henry Miller, president; T. M. Pierce, vice president and general counsel; C. A. Vinnedge, secretary and auditor; H. D. Heuer, assistant secretary and assistant auditor; John A. Mathewson, general manager; Victor F. Steinberg, treasurer.

The new facilities will be in operation in the late summer or fall of 1929, according to S. C. Willis, in charge of the construction work.

A New Iron Horse

A unique fire fighting outfit has been installed by the Anglo-Persian Oil Company on its rail lines. It consists of a truck body, with wheels fitted with flanges for use on rails. It has a capacity for 425 gallons of "Foamite," the solution used in fighting fires. The entire outfit resembles somewhat the large tank trucks used to spread oil on roads. When rushing to the scene of a fire the machine is capable of making over 30 miles an hour.

A good way to relieve the monotony of a job is to think of ways of improving it.

The Clearing Work At St. Louis. The Two Small White Buildings in the Foreground Are the Engineers' Offices.

Editorial Comment

Editorial of This Edition

AT LEAST two great events are to take place in March: Herbert Hoover, one of the world's famous engineers, will be inaugurated President of the United States, March 4, and the American Railway Engineering Association will meet at Chicago the next day. Also, to make it a real good one, the National Railway Appliances Association will have an exhibition displaying the products of its members for the inspection of delegates.

It is, indeed, the day of the engineer. Mr. Hoover has been in world-training for many years for the high post to which he has been called, and this training he continued practically to the last moment before taking office by doing just about what might be expected of an engineer. Obviously he was to inherit the South American problem, which has been the Balkan states puzzle for this nation as far back as any of us can remember. Knowing he would have Nicaragua and other little chaps to deal with in the next four years, Mr. Hoover approached the job precisely as if he were going to build a great bridge. He went down there to look over the site. He wished to see what kind of people he would have to deal with in the future. Doubtless he believes in the aphorism that when you dislike and mistrust a man, very often it is because you don't know him. Mr. Hoover would never have built the harbor at Antwerp from an office chair in New York. That is the working of the engineering mind.

Depend upon it, you will hear his name frequently in the addresses at Chicago next month. This is to be expected, and it will be eminently proper. His selection by the people for the Presidency ought to be a mighty encouraging note for the engineering fraternity everywhere in the world; and not only for those in the field but for aspiring students now surveying the college campus and driving stakes here and there in deadly earnest day after day.

For the thoughtful ones there should be something fine in the message of Elmer A. Sperry, to the members of the A.S.M.E., upon succeeding Alex Dow as president of that great engineering organization.

"It was no accident," said President Sperry, "that the people called as their leader the man who is an outstanding engineer." Mr. Sperry continued:

"In advance of every great forward movement, social, industrial or military, is the engineer. Every contact of our daily life in the means of transportation by which we move or in our environment as we remain in one place eventuates as a contact with the mind of the engineer. We should advance in all fields of our activity, blaze new trails, and broaden the frontiers of the vital service that mankind is rightfully depending on us to yield.

"The most fascinating chapter in modern industry and economics has been the application of science as practically perfected by the research and experience of the engineer. Numberless new industries have been brought into being as the result of his creative leadership. Fitting these scientific laws and principles to the processes of industry and commerce is the work of the engineer. He brings to manufacturing a mind trained in observation, and the facts that he develops by experimentation and calculation, tempered by experience, are brought into line of correct procedure.

"More and more is legislation being written by the engineer. His requirements are embodied in boiler codes, in building specifications, in highway construction, and in machine design. Thus is distinctly dawning the day of the engineer, when the scientific and practically trained mind, equally with others of the learned professions such as perhaps the legal or the strictly commercial, may be called upon to lead the progress of the world and the needs of mankind. It is no accident that the people have called as their leader the man who is an outstanding engineer and one who may properly weigh the problems of the nation, deal with facts, and logically work out their correct solution.

"The professional status of the engineer will reach a high standard through proper public recognition of the value to society at large of the uninterrupted service of the engineer in applying his experienced training to the general need."

Some Men Are So Solemn

Because they were not, apparently, accustomed to such duties, or because they are popular speakers in lodge gatherings of one kind or another, particularly funerals, the gentlemen on the program at the dinner given to honor William Sproule and Paul Shoup of the Southern Pacific, one night last month, conducted themselves in a manner highly reminiscent of Mr. Coolidge at the tomb of the Unknown Soldier. Of course, these gentlemen did their level best, and what they did was intended for the highest kind of tribute to two very important officials. But all they lacked was white gloves and a few tube-roses to complete the impression that they were speaking the last words over the bier of a lodge brother. The criticism is set down here for constructive purposes, to be remembered twenty or thirty years from now

when Mr. Shoup retires to San Mateo to read and write, as he always has wished to do.

Why is it that so many speakers on such occasions pull out the tremolo and forget to push it back? Mr. Sproule has merely given up the presidency of the Southern Pacific. He has not retired from anything else. He is going right along with the highly important public duties he has long performed for the betterment of San Francisco in art, literature and music, cultural matters in which he has been so forceful, in which he has long had such a distinctly intelligent and intellectual interest. He is still young, ruddy cheeked, immensely alive and active. But the undertakers at the banquet nearly buried him that night.

Spend Your Money At Home

A straightforward appeal for community support for a home concern is issued in advertising form by Charles R. Capps, first vice president of the Seaboard Air Line at Norfolk. Two very distinct reactions are felt in contemplating Mr. Capps's address to the public: One is a realization that such an appeal is proper, logical, extremely well phrased, and pretty certain to have an impressive effect in the South. Secondly, as our old minister used to say, it is encouraging to see a railroad addressing the public as it should: in display type, frankly, in the proper place for such appeals: the advertising columns read by the people the road seeks to reach. There isn't a cent in it for this publication, but here's Mr. Capps's contribution to current entertainment:

The Motor Transportation Co. of the South, which has established its bus service between Jacksonville and Tallahassee, is owned by the Seaboard Air Line Railway Co. Therefore, when you patronize the buses of the Motor Transportation Co. you are spending your money with the Seaboard. The Seaboard is your home railroad. It carries your freight, your mail and your express. It serves you in rain or sunshine; in heat or cold. Its agents, its section forces, its train crews, and its commercial representatives live and spend their money among you. The Seaboard contributes substantially to your taxes. The Seaboard buys its ties and its lumber from people who live and spend their money among you. There are many, many ways in which the railway contributes to the support and welfare of your community.

Think the matter over well, and your own judgment will lead you to the conclusion that common fairness and mutual protection require you to patronize the buses of the Seaboard rather than of a line contributing in no noticeable way to the support and welfare of your community.

Horsepower in the Air

Aeronautical engineers and others interested in aviation are having a perfectly hysterical time of it over the old question of the possible load per horsepower in the air. In such circles the subject is known as the "25 pounds per horsepower argument." It has been revived this time because a writer in the August issue of the Forum declared that "power load is an insuperable bar to air transport on a big scale because 25 pounds to the horsepower is the absolute and dangerous limit."

Wilbur Wright, who must have known what he was talking about if anyone ever did, said in 1903 that "200 pounds is attainable, possibly a little more."

Replying to the original article, E. R. Armstrong, president of the Seadrome Development Company bearing his name says, "the modern transport airplane carries more pay load per horsepower than do the largest and fastest steamships, our fastest and most palatial railroad trains or our highly developed and comfortable automobiles. If pay load per horsepower be the measure of success, which I am inclined to question, then transport aviation has a very bright future indeed."

Farther along in his reply Mr. Armstrong says, quoting from the annual report of the Pennsylvania Railroad for 1927, "I find that about 120 pounds of coal is burned per locomotive-mile hauling an average passenger train carrying 70 passengers. In a locomotive about 2½ pounds of coal is burned per horsepower hour. Assuming the average speed of the train when running of 40 miles an hour, the average power developed will be about 2,000 horsepower, which hauls eight tons of passengers, with baggage, 40 miles or on the previous basis of comparison, six horsepower will be required per ton mile, 50 per cent more power than that required by the transport plane.

"To make the comparison complete, although it has very little direct bearing on the matter, the ton-mile pay load per horsepower of the average automobile is worth giving here. As an example a medium sized motorcar, with the average load of two passengers, giving 15 miles to the gallon of gasoline, at the rate of 30 miles an hour is used. In one hour two gallons of gasoline will be consumed, developing during that time, 25 horsepower, which 25 horsepower transports two passengers totalling say 500 pounds, 30 miles. This reduced to a ton-mile basis gives five-horsepower per ton-mile, exceeding somewhat the power requirements of the transport plane. The preceding may be summarized as follows:

	Horsepower per ton mile
Transport Airplane	4
Passenger Automobile	5
Passenger Locomotive	6
Passenger Steamship	20

Mr. Sproule Retires

What a fine reward it is to have lived your life so usefully, to have accomplished so many important things for the public good, to have gone about your responsible duties through many years unostentatiously, efficiently; to have promoted the interests of your employers so competently, very often against uninformed opposition and throughout all the trials, the disappointments and the successes to

have kept the good regard of men—what a fine reward it is to meet friends and acquaintances of a lifetime from every part of the nation, gathered at the banquet board to do you honor, when, after long service, you turn the job over to another man!

William Sproule, for so many years president of the Southern Pacific Company, must have felt a sense of keen satisfaction in the presence of the hundreds who met him the evening of January 10, at the Palace Hotel. Here was an assemblage gathered by the citizens of San Francisco from a dozen states, and even from the other side of the continent; a line so long that one-half the number never reached the point of reception for hand-shaking, though it pressed forward for more than an hour; not railroad men only, but representatives of business in every department of commerce and industry; men who said "You gave me a square deal," and others who simply smiled, shook hands, and hastened along to Paul Shoup, Mr. Sproule's successor, to wish him good luck in the larger duties he has assumed.

What a fine reward, and how well deserved!

How Time Does Fly!

A search through the files of fifty years is an astonishing experience. During that half-century, or a little more, there have been five great expositions, Philadelphia, Paris, Chicago, St. Louis, San Francisco, educational and industrial demonstrations of the world's advancement, the most wonderful proof of man's enthusiasm, ambition, push. Our own experiences go back only to the Chicago fair, the World's Columbian Exposition of 1893, but they serve as a trustworthy background for these reflections.

During the preparatory period of the fair, serving on a Chicago daily, we were assigned to read the files describing the Centennial at Philadelphia in 1876. Presumably that was a great show, but the effect as we read the editorials and news reports of the day was, "What a lot of saps they were in those times." The submarine cable was about ten years old in 1876 and working fairly well between Ireland and Newfoundland. It was astonishing, therefore, to discover in the files that, a few years before that time, Professor Lovering of Harvard University, a scientific man of wide and excellent repute, had declared that he had demonstrated to his own satisfaction that telegraphic communication under 3,000 miles of ocean would be an utter impossibility. In 1912 there were more than 400 submarine cables connecting most of the world's countries. There are more now; we don't know how many.

The files told the story of Marconi and his wireless. What a time he had with the scientific sharks! These learned gentlemen declared in 1897 that the wireless idea was the silliest thing anyone had proposd up to that time. Overlooking the fact that Preece, long before Marconi's day, had sent messages through the ether 40 miles, using induction from land lines, the solemn scientists said that as the curvature of the earth was seven feet to the mile it would be necessary to have a tower 700 feet high to send a message 100 miles. Marconi didn't seem to care much about the scientists. He just went ahead with his crazy ideas, and today this country and England talk across the ocean over the wireless telephone. You can't escape from your friends now. They can wire you aboard ship, far out in the ocean, on a train or, in some cases, on an airplane. Indeed it may not be long before it will be possible for your wife to see who is present when you telephone her that business will keep you at the office until very late, curse the luck.

A Wave of Conscience

It may have been the election, some change in the moon or an impending disaster, but whatever the reason it is almost startling to note how many conscientious persons have suddenly turned repentant in the last few weeks. The most peculiar thing about this phenomenon is that practically every man or woman stricken had cheated a railroad, and felt the old bill must be paid if mental peace was to be had this side the grave. It may not be long now before someone confesses that he neglected to include his diamonds or automobile in his report to the tax assessor. In one week in December four persons in four states turned in the fare for trips they had taken a generation ago. Three such cases were reported in January. It might pay, after all, to distribute a few quotations from Shakespeare on this point here and there.

Passenger revenues continue to decline for the railroads. Many millions have been spent uselessly to bring back this vanishing traffic. Why not advertise breakfast served in the berth, the latest novel, a shave and a smoke, all free?

The engine that pulled the funeral train of President Lincoln must have been a whopper with a lot of throttles. Another of the engineers who ran it has just been discovered at Fort Worth. Like the southern homes in which Washington slept, there seems no end to the list.

Some boasting is being done right now over the report that the aviation industry, with a value in excess of 150 million dollars, has almost no funded debt and very little preferred stock. Wait a while. Aviation has not yet been "regulated" by the government.

President Hannauer of the Boston & Maine seems to be showing the effects of something.

Taking a well directed crack at someone he says rate reductions have been influenced by politics. Mussolini, he says would have had the job done promptly by men answerable to him for correct results. Mussolini's most effective weapon in getting action was castor oil.

President Coolidge doesn't seem to be very favorably impressed by the tomb-like silence of the Interstate Commerce Commission. It took that somnolent body three years to figure out the mail pay case and the spurt cost the people $45,000,000 in retroactive payments. The Nickel Plate merger was another demonstration of government haste. But the President didn't mention it.

There seems to be no limit to what may be done to a railroad company. Up in Nebraska, last month, $28,000 was awarded a workman bitten by a snake in an engine pit. The award was affirmed by the supreme court. That wise tribunal held there was a difference between nature's invitation to snake-like habitation and artificial creations confined to a place of business activity.

Ash pits should be equipped with the old time antidote. But here we encounter Rule G and the Eighteenth Amendment.

Another brilliant accomplishment of government in business is found recorded in the yearly report of the Alaska Railroad for 1928. Its deficit was only $840,890 for the year, compared with $900,174 in the previous twelve months, the first time it had fallen below a million dollars since the enterprise was started. After spending about $75,000,000 it was estimated in 1925 that the job would be finished for $11,878,000. But a large part of it still remains to be done. It would be delightful to hear the comments of the late Mr. Roosevelt if he were here to read this report.

The United States Supreme Court is growing touchy. In directing that the New York Interborough case be reargued, last month, the court said the briefs must be "compact, logically arranged with proper headings, concise and free from burdensome, irrevelant and immaterial matter." In its original presentation the briefs and other things contained only 870,000 words. The Supreme Court probably has never seen the correspondence in a claim against a railroad for $1.85 for a damaged case of eggs.

The latest contribution of the Interstate Commerce Commission to the misinformation of the public is found in its solemn announcement that unless the railroads meet certain water-and-rail rates on the Ohio River it will permit the building of a railroad to take the business. Without a thought for the source of the hundreds of millions without interest put into the various waterways operated by the government to compete with the railroads the commission finds that the Ohio River development has been justified. The ignorance of the educated, said Gilbert Chesterton, is dangerous because they know so many things that aren't true.

For a Certain Person

When a plumber makes a mistake, says the Wall Street Journal, he charges twice for it. When a lawyer makes a mistake, it is just what he wanted, because he has a chance to try the case all over again. When a carpenter makes a mistake, it is just what he expected. When a doctor makes a mistake, he buries it. When a judge makes a mistake, it becomes the law of the land. When a preacher makes a mistake, nobody knows the difference. But when the editor makes a mistake—good night!

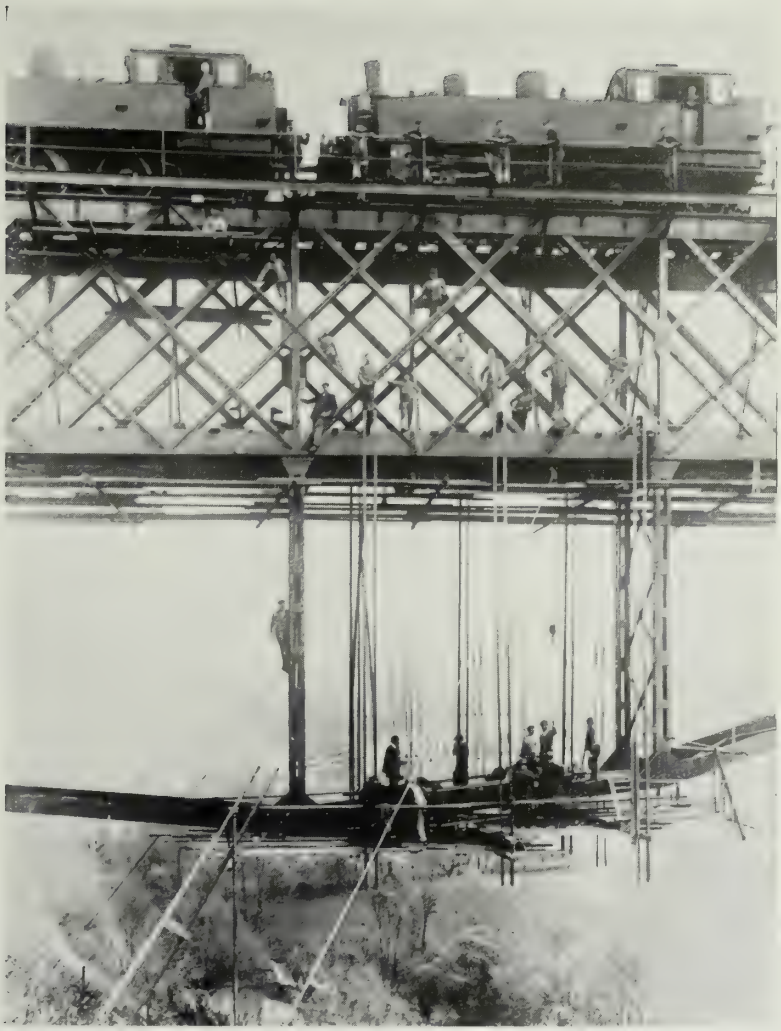
Why the Good Die Young

The professor of something or other in the Iowa State College gave to a girl student, not long ago, as the subject for her thesis, "Inventions on American Railways Since the Civil War." She went to the superintendent of the Milwaukee for help. He threw up his hands and referred her to this magazine. We sympathized with the poor thing and told her we stood ready to buy a set of books on the subject whenever it might be written, and suggested that if the professor himself could cover it in an acceptable article we should be glad to pay a large price for it, for serial purposes. As an alternative we suggested she take just one invention—the airbrake—and see what she could do with it.

Just Another Survey

The newspapers of Mexico City are highly inflamed over the visit of a group of American engineers who have been going over the Mexican National Railways. One paper says these gentlemen are believed to be making a survey of the railways for the international committee of bankers interested in Mexico and its assets. As Sir Henry Thornton of Canada did this only a year or so ago, and has since then been as silent as a Sunday in Omaha, the Mexicans do not see why anyone else should begin surveying down there. Sir Henry made a report to the Mexican government but it has never been issued in book form. One thing is quite certain to those familiar with the southern republic's government-owned railroads, and this is that no better form of permanent investment could be imagined.

Among the Men Who Do the Work



The Men Who Do the Work in This Instance Are Testing the Load Capacity of a Railroad Bridge at Essen, Germany. Special Vibratory Measuring Instruments Were Used.

THE general employe who is not a regular solicitor but who solicits, and through his efforts gets more business, freight and passengers, for his railroad ceases to be just an ordinary employe. He becomes more valuable to his road and becomes more interested in his work. Any employe should realize that as his road propsers this prosperity will be passed on to him through possible increases in wages in addition to his participation in other benefits that a prosperous railroad will offer.

The employe who is successful in getting more business for his road is the employe who, when coming in contact with the traveling and shipping public as well as those persons who are potential travelers and shippers, creates a favorable impression on such persons through his personal demeanor and ability to convince these persons of his sincerity and his road's ability to render a quicker and more superior as well as a more courteous service than its competitors. This employe refrains from knocking or criticising the competing road or roads, and is careful to make no statements as to his road's ability to fulfill promises unless he knows such statements to be true, and that any promises and agreements made can and will be fulfilled.

In making promises that can be fulfilled this employe should and must have the cooperation of many other employes in many other departments who contribute in various ways to the proper, safe and efficient handling of freight and passengers. For this reason there must be a spirit of team work and cooperation among all employes to bring about the desired and necessary results.

Many passengers and shippers, as well as consignees, are inclined to follow the lines of least resistance. In other words, they have been patronizing one road for a long time without ever a thought of changing. They may not be receiving satisfactory service and would welcome a change and an opportunity to show that another road can satisfy, or has something superior to offer. They probably have never been approached by a solicitor which accounts for remaining a regular patron of the other road. These people, and there are a vast number of them, are to be classed among the livest prospects.

Every man or woman in every line of endeavor or walk of life

that the soliciting employe meets or comes in contact with, is a prospective patron or customer. The solicitor may not always close the deal on the spot, but if his tactics and methods of salesmanship are anywhere near the standard, and he is sincere the prospect is very likely to remain sold and his efforts will not have been in vain. At least he has acquainted someone with the good points of his road and what it has to offer.—C. L. Holland, Atlanta.

How a Yardman Can Help

By H. C. Wright
Switchman, Kansas City Southern

Carload damage is the big problem before the railroads today. Very much can be accomplished by the efforts put forth by every individual in yard service. The yardman, engine foreman, helpers, engineer and fireman can appoint themselves a committee of one and call the attention of fellow workers to the things that are dangerous and destructive. It may save one's life or limb and damage claims. All claims have to be paid or the railroad loses a customer.

The most important thing for a yardman to do, which will bring about a reduction in damage claims, is to obey the rules and instructions. Signals must be given so that they will be plainly seen. Do not give violent stop signals, except to prevent injury or accident.

Weather conditions should be taken into consideration by everyone in yard service, as that is one of the most important conditions yardmen are confronted with.

Handle carefully all cars loaded with commodities subject to damage by rough handling. Bad judgment in the kicking of cars, kicking cars too hard and so fast that the fielder cannot control them, causes damage to equipment and commodity which shows up when the car reaches its destination.

Inoperative and ineffective brakes cause a percentage of damage, which can be overcome if the rip track foreman will see that every hand brake is tested and adjusted while on the rip tracks. I have found that too much brake chain is the reason for most of the poor brakes.

We all know that when a yardmaster spurs and hurries his crew to work faster the opportunity for damage is increased. Do not work so fast that chances will have to be taken on damaging cars and contents. There is not a railroad in the country, as far as I know, that requires a man to do so. Then why are men so ready to violate the rules and take chances? "Think, then act" will put a stop to the carload damage.

Troubles of Ticket Redeemers

By W. V. Wilson

The man who redeems unused railroad tickets has his troubles. He must meet all kinds of people and never lose his temper. He must know all kinds of tickets and their redemption value. He must examine tickets, answer questions, count out money and smile, all at the same time. If he has any time left he must spend it studying the new ticket forms constantly being devised by the railroad's passenger department.

People want all kinds of tickets redeemed for all kinds of reasons. First in line at the window may be a stenographer who bought a ticket to the shore, only to learn that she had to work Saturday afternoon and could not use it. Next to her is a man who bought a round trip ticket to New York and did not use the return trip because a friend brought him back in his automobile.

While the ticket redemption clerk knows the fares between a great many points, he cannot be expected to remember all of them. There are single fares, round trip fares, one-day excursion fares, sixteen-day excursion fares, fares for the clergy, for railroad employes, for commuters. Beside the ticket redemption clerk in the typical railroad office is a rack containing lists of the fares to all points.

A man will come to the window with a part of a commutation ticket which he wants to have redeemed. The redemption clerk must figure out its value very carefully. Commutation tickets are sold at rates considerably under the one-way fare. When unused portions of a commutation ticket are redeemed the rides used are reckoned at the regular one-way fare. This usually results in a storm of protest, as the average commuter thinks he should be charged for the rides used only at the special low fare.

Why Taxes Are High

There is great need for putting the brakes on local taxation. By that, we mean state, county and municipalities. Since 1921 the cost of government has gone up from $9,500,000,000 to $11,600,000,000, in spite of the fact that in that time the national government has reduced its expenditures $2,000,000,000, which means that states, counties and local communities have increased theirs over $3,500,000,000 since 1921.

These figures are alarming; in fact, it is these constantly increasing local taxes that add so heavily to the farmer's burden. This situation cannot be ignored. It will not stop of itself and cannot continue without disaster. Probably there is nothing more certain to help prosperity and make for the happiness of the people than to stop this local extravagance. It will help everybody.—The Illinois Farmer.

Avoid fulsome compliments or indulgence in gross flattery. This is offensive to most people.

Personal remarks or jokes about a person's appearance, age, or infirmities are inexcusable.

A Portable Tie Treating Plant

Advantages Over Stationary System

By R. W. Buckles

It Is a Good Bit Cheaper to Move the Treating Plant to the Timber Region Than to Pay the Cost of Transportation Doing the Contrary.

RAILROAD ties do not, in a literary sense or with respect to human interest, present very alluring material for an evening's reading. Any bonehead knows, of course, that ties go under the rails, and if he is traveling he hopes they'll stay there. He hopes they are good, sound pieces of timber. There is a chance he may give just a thought to the section men who laid them. The cold truth of the matter is that few persons give to this part of the railroad they use one-quarter the consideration it deserves.

Some day some great philosopher is going to write a novel about section men and the work they do. The late Walter Camp wrote a volume almost as big as Who's Who on this one question, a book that still is a classic in its own field. It may be that you will never see this book. You may not even be interested in it. But some dark, rainy night when you are dumped into the ditch at 50 miles an hour, ties will have a meaning all their own.

This is a story about ties, but primarily it has to do with a portable plant for treating them, the only one of its kind, it is said, now operating in this country, owned and patented by the T. J. Moss Tie Co. of St. Louis. Most persons interested in timber preservation, particularly in the treatment of railroad cross ties, have at some time visited at least one of the many treating plants now in operation throughout the United States. Few, however, have ever seen a portable treating plant. To many the idea is entirely new.

The portable plant has several advantages over the modern, stationary treating plant. The ability to move the plant to the ties rather than transport the ties to the plant means a considerable saving to many railroads, especially where roads are able to procure their entire requirements from timber adjacent to their own lines. Without treating facilities it is necessary for such roads to ship the ties over some foreign line to have them treated. The freight charges add considerably to the cost and makes treated ties in some instances prohibitive. The portable plant means much to such roads.

The illustrations give a far better understanding of the operation of a portable plant than words could possibly do. The entire plant is mounted on standard gauge trucks and can be moved from one location to another as a part of any train.

The treating plant has three large cylinders. The two lower cylinders are used for treatment and the one above is for air storage, 250 pounds being maintained. The pumps are all installed on the undercarriage. Valves are conveniently placed so that one man can handle the entire operation easily during the treatment periods.

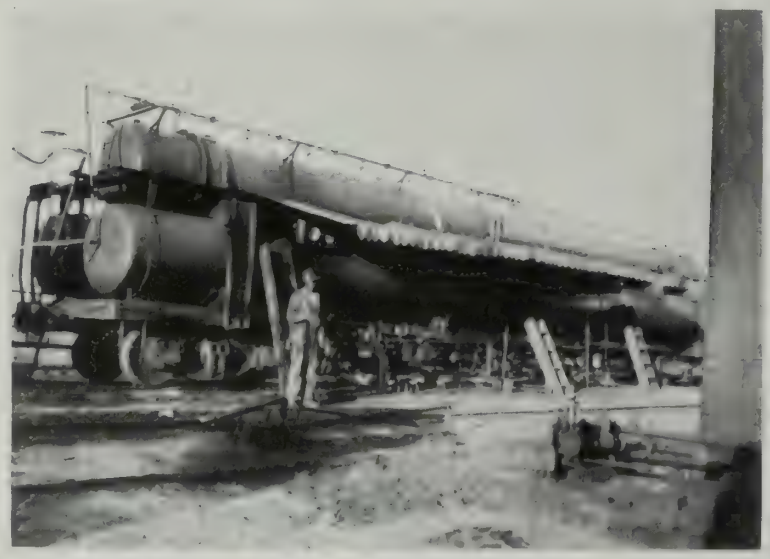
Narrow gauge tracks are laid on two 50-foot flat cars on which the trams are loaded with ties. By means of hoisting engine and cable the trams are pulled to and from the cylinders. The gauge is 19 inches.

A standard locomotive supplies the steam power to operate the pumps and to heat the coils in the oil tanks and cylinders. The locomotive is fuelled with natural gas rather than coal, a unique feature. It handles the work in a very satisfactory manner.

The plant is equipped with modern air compressor, pressure pumps and up-to-date vacuum equipment. The required treatment by the standard Rueping Empty Cell process or full cell process, conforming to the latest approved specifications, is thus assured. The cylinders are made of cast steel and have been tested up to 500 pounds pressure. During actual treatment a pressure of 350 pounds is used.

Hundreds of thousands of cross ties, red oak, gum and pine, have been treated under this high pressure. The results have proved conclusively that a deeper, more uniform penetration is obtained than at stationary plants where 175 to 200 pounds pressure is used. And the time required is considerably reduced.

The treating cylinders are 60 feet long and four feet in diameter inside. Seven tramloads constitutes one "charge" and each tram holds an av-



The Plant Proper. At Right Just a Corner of One of the Oil Tanks.

erage of fourteen or fifteen, 7 by 9 by 8 feet 6 inch ties. The tram cars newly purchased for this plant are of heavy construction, equipped with roller bearings. The plant can turn out 2000 ties a day, working day and night shifts.

What Are the Typical Airplane Costs?

In response to many inquiries from the air-minded or those who seem to be approaching that condition, some figures typical of most of the first class airplanes are given here showing cost, depreciation, operating costs, etc. For the purpose of this statement we have selected the Travel Air Transport monoplane.

To complete such a statement, obviously, one must know the cost of flying field rent, office force and equipment, advertising, and the like. This has been omitted due to the extreme variations possible. The prospective operator is referred to the following books which record the costs and profits in more details, or a consulting engineer in airplane operation should be consulted: Introduction to the Economics of Air Transportation, Kennedy; Air Transport, G. Holt Thomas; Publications of department of commerce on air transportation.

Other figures have been omitted purposely to avoid confusion in the reader's mind. The data, necessarily, is only an approximate, due to the wide variation of operating conditions, type and amount of average pay loads, care of maintenance, length of route, number of planes used and the locality. However, these figures have been compiled from a study of operating costs of various routes now in existence, and are an indication of the nature and proportions of expenses in general. The greater the number of planes operated and the larger the flying hours per year per plane, the smaller will be the operating costs.

But the O'Fallon's Don't Smile

William Howard Taft, Chief Justice of the United States, is a gentleman of many accomplishments. Among the chief justice's assets is his sense of humor, which he backs up with his well known chuckle.

Serious and most important as were the arguments before the Supreme Court recently on the O'Fallon valuation appeal, the head of the judiciary did not fail to take several opportunities during the two-day arguments to "crack a joke" with counsel. Several times the chief justice tempered his remarks with a humorous twist, much to the merriment of those present, and, it may be said, to their relief, since it went a long way to relieve the tedium of the involved legal propositions and fine points being argued.

The Picture on the Cover

On the cover this month we reproduce a photograph of the last steam train to traverse the old horseshoe curve route before the new tunnel of the Great Northern Railway through the Cascade Mountains was opened January 12. You don't see the train in this picture; but it is there, right around the curve. It's a P & A Photo.

First cost of Travel Air Transport monoplane	$12,000
Life of Airplane	6000 Flying hours
Life of engine	1500 Flying hours
Hangar rent	$ 30-$ 50 a month
Pilot's salary	$200-$400 a month
Mechanics' salarv	$100-$200 a month
Helper's salary	$100-$200 a month
Airplane carries four passengers and fifty pounds baggage or 750 pay load of express or mail.	
Cruising speed of airplane	105 miles an hour
Fuel consumption at cruising speed	9-12 gal. an hour
Oil consumption at cruising speed	2 quarts an hour
Fuel cost	.25 a gallon
Oil cost	.70 a gallon
2000 Flying hours per year per plane	
Engine overhauls every 200-300 hours	

Direct operating cost of engine.	Flying Hour	Flying Mile
Fuel	2.63	$0.0250
Oil	.35	.0033
Spare parts and overhaul of engine	4.03	0.0383
Total	4.03	0.0666
Direct operating costs of airplane,		
Spare parts, replacements, repairs	0.10	.0009
Overhauls, recovering, etc.	.05	.0005
	0.15	.0014
Indirect operating costs for one airplane,	Flying Hour	Flying Mile
Hangars	$.29	$0.0027
Pilots	2.16	0.0206
Mechanic	1.08	0.0103
Helper	.72	0.0069
Depreciation of engine	5.33	0.0317
Depreciation of airplanes	1.17	0.0111
Total	8.75	0.0833

The Table Shows About What It Will Cost You to Buy and Operate An Airplane. Don't Forget the Up-Keep. It's Important When You're Flying.

The Frisco Saves Millions in Scrap

A Small Part of a Long Story

By R. P. Danver

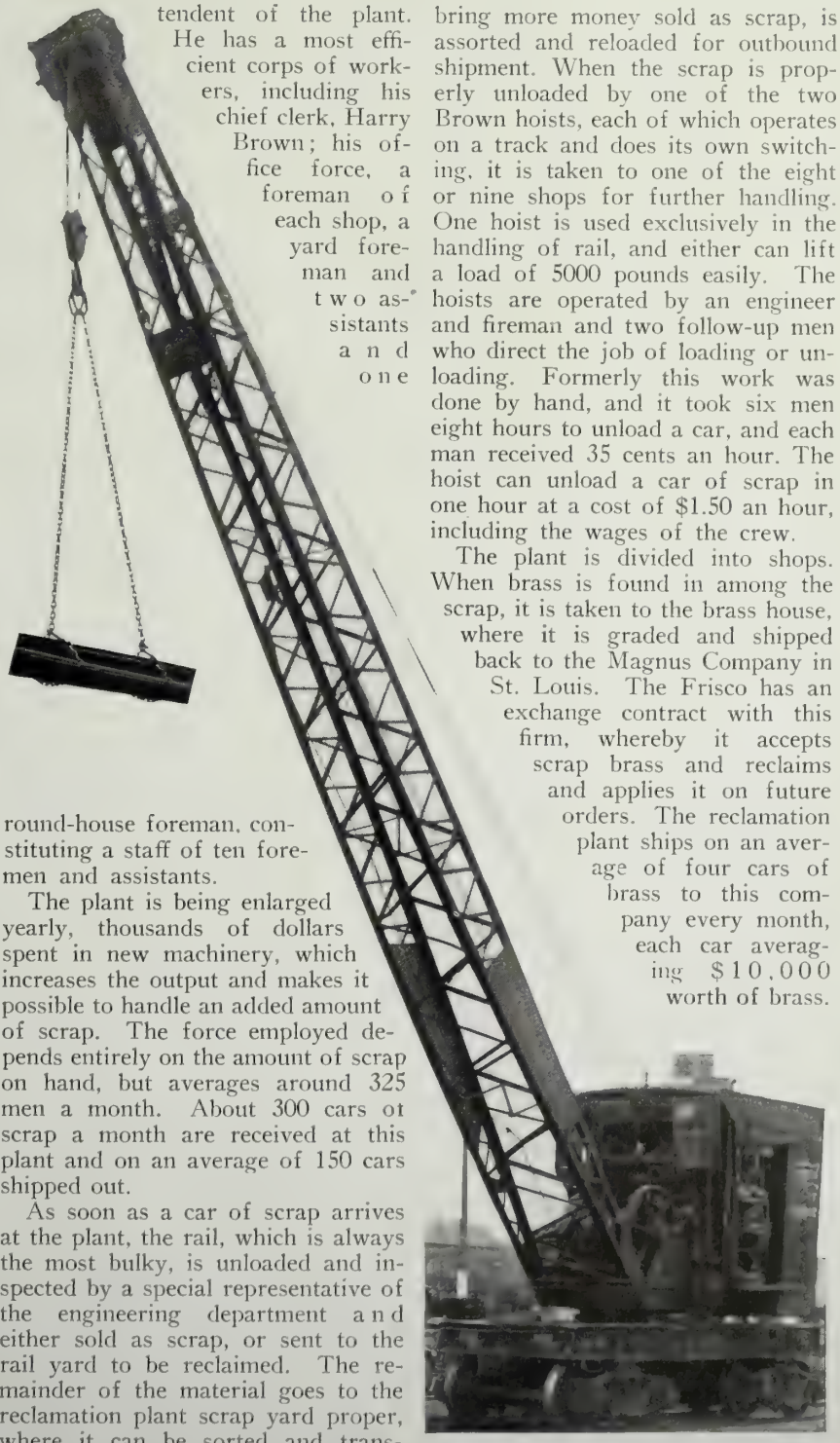
THE MOST misunderstood part of the whole Frisco System is said to be the company's large reclamation plant at Springfield, Mo. It is not misunderstood, of course, by those who are directly interested in the reducing of operating costs, because those gentlemen realize the tremendous good the plant is performing. Nor is it misunderstood by the stores department, to which a gigantic amount of credit is turned every month which represents the savings effected by the plant in literally reclaiming from scrap, more than 340 separate items.

In the years before 1913 this reclaiming process was unknown. A broken rail was thrown away. Unfit equipment was junked. Hundreds of articles which could have been put into condition by a little work were sold as scrap because the equipment for their habilitation was not available. When the reclamation plant was built in 1913, it started as an adjunct to the north side shops at Springfield. But so rapidly did it prove its worth, that in September of that same year, it was enlarged and moved to its present site.

In August, 1925, the plant actually saved the Frisco Railroad $111,441. In September that saving was $106,929. This tremendous amount, more than a million dollars a year, involved the reclaiming of many articles from adzes to wrenches right through the alphabet. The report of their reclaiming and return to service required the use of five large sheets of paper.

This, then, is the story of a remarkable plant, and the Frisco is proud of the fact that it was the second reclaiming department to be installed on any railroad in America. The Santa Fe was first, the Frisco second, and Frisco reclaiming plant men are in charge of the plants now being operated by many other railroads which have patterned their reclaiming departments after that so admirably conducted by the Frisco.

The plant is under the direct supervision of A. W. Blume, general storekeeper, and under the active supervision of L. J. Leysaht, superintendent of the plant. He has a most efficient corps of workers, including his chief clerk, Harry Brown; his office force, a foreman of each shop, a yard foreman and two assistants and one round-house foreman, constituting a staff of ten foremen and assistants.



The plant is being enlarged yearly, thousands of dollars spent in new machinery, which increases the output and makes it possible to handle an added amount of scrap. The force employed depends entirely on the amount of scrap on hand, but averages around 325 men a month. About 300 cars of scrap a month are received at this plant and on an average of 150 cars shipped out.

As soon as a car of scrap arrives at the plant, the rail, which is always the most bulky, is unloaded and inspected by a special representative of the engineering department and either sold as scrap, or sent to the rail yard to be reclaimed. The remainder of the material goes to the reclamation plant scrap yard proper, where it can be sorted and transferred from inbound cars to outbound cars. The scrap that can bring more money sold as scrap, is assorted and reloaded for outbound shipment. When the scrap is properly unloaded by one of the two Brown hoists, each of which operates on a track and does its own switching, it is taken to one of the eight or nine shops for further handling. One hoist is used exclusively in the handling of rail, and either can lift a load of 5000 pounds easily. The hoists are operated by an engineer and fireman and two follow-up men who direct the job of loading or unloading. Formerly this work was done by hand, and it took six men eight hours to unload a car, and each man received 35 cents an hour. The hoist can unload a car of scrap in one hour at a cost of $1.50 an hour, including the wages of the crew.

The plant is divided into shops. When brass is found in among the scrap, it is taken to the brass house, where it is graded and shipped back to the Magnus Company in St. Louis. The Frisco has an exchange contract with this firm, whereby it accepts scrap brass and reclaims and applies it on future orders. The reclamation plant ships on an average of four cars of brass to this company every month, each car averaging $10,000 worth of brass.

This, it should be remembered, was shipped to this plant as scrap,

and after a trip to the brass house, an assorting process, reloading in a box car and shipping east has netted $40,000 on brass alone for one month. At the brass house the babbitt is melted from the journal bearings and scrap lead is melted up and pigged, and placed back in service.

There is a machine, home-made, for stripping dry batteries of zinc and wax and brass parts saved. The wax is made into sealing wax and used in sealing important packages of railroad mail. When sold, the wax brings 20 cents a pound. The zinc is sold as scrap. Although the latter two materials are not profit-making ones for the plant, they pay for their reclaiming, and there is quite a demand for the sealing wax.

The most profitable reclaiming work done is that of reclaiming couplers, rails, springs, hose jacks, shoe keys, lamps, angle bars, tie, brace and follower plates.

The rail work has reached an enormous stage. The rail yard is one of the most imposing in the plant. Here the rail is sorted and reclaimed, and averages 30 cars a month, or a total monthly saving of $2,300. A rail can be as sun-kinked as is possible for it to be, and a few moves through one of the up-to-date straightening machines, straightens it, ready for use. This process costs $1.15. An average of 35 rails are straightened and made ready for service in one day. If the rail has to be straightened, sawed off and redrilled, it costs only $1.95 a rail. The two rail presses, one operated by hand and the other by air, save many thousands of dollars every month.

One of the most amazing machines in the entire plant is the rail saw. Its work is quick and sure. The deafening sound you hear means that it is sawing a 90-pound rail into two pieces in only 15 seconds. This saw is a Ryerson High Speed Friction Rail Saw, and is used for sawing off rails to be redrilled and placed back in service—sawing into lengths for guard rails, switch points, frogs and also for sawing various other metal such as angle iron. The huge saw wheel is 48 inches in diameter and three-eighths of an inch thick. It makes 1,750 revolutions a minute. This machine was purchased early in the summer of 1925 at a cost of $9,000. Formerly it required two men 20 minutes to cut one rail. Now the entire operation consumes only two minutes, which includes handling the rail from the ground to the saw and back to the ground again.

Recently a test was made. Rail was sawed off at both ends, four holes drilled, at the rate of two rails an hour and at a cost of 83 cents a rail. The machine will pay for itself within a very short time, on the saving made from this scrap rail.

The average number of tons of scrap rail received in one month is 3,500. Every month 500 tons are run through the shop and reclaimed, and about 1,000 tons a month are shipped out. The cost to handle rail with the hoist is 25 cents a ton.

An average saving of $4,473 a month is made in the reclaiming and reconditioning of air, steam and signal hose, about 3,235 being handled. Thirty-nine thousand two hundred and thirty pounds of elliptical springs are reconditioned, at a total credit of $1,632, while 7,920 pounds of coil springs net $240 credit. A total of 248 couplers is a good average reclaim for a month, which brings a credit of $10 each, or $2,480. Jacks of all descriptions are repaired and some sixty-two are handled a month, bringing a credit of $460.

The many efficient and profit-saving devices installed in the reclamation plant, not only do the work of reclaiming for service, thousands of dollars' worth of material every month, but are fast becoming a manufacturing unit of splendid performance. Other interesting work in this money-saving plant will be described in another story.

The old saying has proved true that, it is not what you spend, but what you save that counts when the credits are all considered.

Bus Competition in South Africa

The competitive factor in transport which the development of road motor vehicles has created in South Africa in recent years is reported causing increasing concern to that country's railway administration. In certain suburban areas there appears to be an increasing tendency for passengers to transfer their patronage to motor bus services operating in competition with the railways. This has attained such serious proportions in one section, the Port Elizabeth-Walmer branch, that the railroad has been discontinued, Assistant Trade Commissioner William L. Kilcoin, Johannesburg, reports.

According to a recent statement made by the system manager at Cape Town, the Sea Point Railway is losing £44,000 yearly, and the Mowbray also is losing heavily. Nor is road competition being confined to the administration's passenger services, it is said. It is becoming increasingly felt in respect to freight traffic, as shown by the fact that the Midland System manager was compelled to adopt special measures in order to cope with the road competition between Port Elizabeth and Fraaff-Reinet.

Some adequate measure of control over road motor services that compete with the railways is generally conceded to be imperative, but up to the present no definite steps have been taken. A uniform law governing competition of this kind is being strongly urged, not only by the railway administration but also by certain commercial bodies, and it is believed likely that some action in this regard will be taken by parliament in the near future.

In order to meet the competition of privately operated bus routes, the railway administration continues to expand its motor transport service. The open mileage operated by the railway on September 25, was 8,149. In addition, 2,162 miles have been authorized but not yet put into operation.—*U. V. W.*

—And They Make Money

He was one of the usual hangers-on in one of Wall street's brokerage houses. Now and then he made a small trade. The other day when airplane issues displayed strength he turned to his sitting neighbor and remarked: "Yep, those airplane stocks have a great future. Hey! George! Buy me 25 shares Seaboard Air Line. It's way behind the others."—*Wall St. Journal.*

But How About the Net?

An hour is a short time, yet within that brief period the railways of the country perform an amazing service. In an hour the Class 1 lines in the United States load 5,903 cars with 146,240 tons of revenue freight, and 94,731 passengers board the railways' trains. In the same period the railways earn $700,491 from their transportation operations, spend $522,166 in operating expenses, pay $332,102 in wages and $42,935 in taxes to national, state and local governments.

Angry Motorist—"Some of you pedestrians walk along just as if you owned the streets."

Irate Pedestrian—"Yes, and some of you motorists drive around just as if you owned the car!"—*Hardware Age.*

Avery Turner.

Little Stories About Big Men

MANY YEARS AGO when we were third trick dispatcher at Winslow, Arizona, on what was then called the Atlantic & Pacific and now is a part of the Santa Fe—one night there came a wire with the disturbing news that our connection at Albuquerque would deliver the president's special to us at midnight. We were told, too, that the gentleman was in a fever of impatience to get to Los Angeles, a mysterious condition to us then, but clear enough now, and rather insisted that his expedition be run over our division on a special time card.

It was a terrific moment. In our immaturity—it was in the late 80s—we thought of the president as being only a very little lower than the angels, with a halo about his head as big as a spare tire on a truck. We don't remember this president's name—it may have been A. A. Robinson, a great engineer in his day; a well-loved name on the Santa Fe 30 years ago. It doesn't matter. Whoever it was he was in a hurry that night, and of course he had to show up just when we had a silk train and one or two of oranges, all entitled to passenger speed, a stock train off the track near Holbrook because of a sand storm, and a wind blowing that seemed likely to tear up the rails.

Otherwise everything seemed smooth enough. Eventually we got that special time card figured out for the whole division so that the old man didn't have to stop more than once or twice for orders. And, thanks be to the Providence that cares for train dispatchers in great crises, we got

—P & A Photo.

Louis W. Hill, Jr., Son of the Chairman of the Board, Great Northern Ry., and Grandson of the Late J. J. Hill, Builder of the Great Northern. The Young Man Is At the Controls of the First Electric Locomotive to Go Into the New Cascade Tunnel, January 12.

that train over the 300 miles without a delay, and without putting the silk or the oranges in the hole. Someone did get stuck at Devil's Canyon where we had no night man, and the agent had to turn out and get orders to move him along, but by and large, as Sam Blythe says, it wasn't a bad piece of dispatching.

And then, in the words of the movie title writer, came the dawn, and a little later the chief dispatcher, grumpy as he always was, and looking for trouble. At about the same moment the Needles called up. It was a snappy sender, and he desired to know just as quickly as possible who had issued that time card for the president's special.

It looked as if our sentence at Winslow had been served. Trembling somewhat — every old-timer will know how a youngster on his first trick would feel under such conditions—shakily, we admitted we had done the dirty work.

"Well," said the sender at the Needles, and consciousness returned with a glow that warmed us all over, "well, son, you did a pretty good job. Avery Turner speaking. How would you like to take the third trick at the Needles? It pays $15 a month more than Winslow."

Not knowing anything about the Needles at that time, we accepted. We didn't even ask why a third trick man at that point should get more pay than at Winslow. We learned this after our arrival. That, should anyone inquire, was where we quit railroading for many years. Unless the Santa Fe's folders are works of fiction, which, of course, is unthinkable, the Needles now is a beautiful place. The people wear clothing, we understand. In our day the superintendent was the only man who owned a shirt or a coat—A. M. Beale was his name—and John De Naire, the trainmaster, a portly figure, he was, used little except trousers and shoes.

All this leads up to the fact that now, in the autumn of life, we have found Avery Turner again, and are giving ourselves the very great pleasure of showing his portrait at the head of this month's installment of Little Stories. To renew such an early acquaintanceship is one of the fine compensations of life.

The story we are going to tell may seem a bit melodramatic except to readers whose service record dates back to rather early days, and for these it will seem a bit ordinary, because the first reel refers to things that happened frequently.

"Hands up!" commanded the stern voice of the conductor. The train was making its way from La Junta, Colo., to Santa Fe, New Mexico. Instantly, his temporary assistant, Billy the Kid, notorious outlaw of the Southwest, covered the carload of bad men who had calmly announced they would ride free; and fares were collected as peacefully as now in the placid days of 1929.

Short, emphatic, extremely tense, that little scene in the passenger coach. Avery Turner was the conductor. Billy the Kid has gone, long ago, where fares are not collected, according to the common belief.

And here we have Mr. Turner again, after more than half a century with the Santa Fe, still a strong character, smiling and cheerful, as general agent, land and tax commissioner for the great system that has grown from a few hundred miles in his young manhood to more than 12,000 in the years he has served it.

When Avery Turner entered the employ of the Santa Fe it had but 491 miles of track.

Avery Turner was born in 1851 near Quincy, Illinois, in the colonial home of his forefathers. He worked his way through Cornell University, which he entered at the age of seventeen. After college came various jobs of civil engineering. The first railroad to employ him was the Q. A. & St. L. Then the Q. M. & P., and the old Erie lines in Pennsylvania.

"In 1874," said Mr. Turner, one day, "I went to Colorado to help survey the old Maxwell land grant. After spending four months on this I discovered that the title was fraudulent and informed my employer of the fact. Strange to say it so angered him that he dismissed me, and even refused to pay for the work I had done.

"Shortly after this I ran across a geodetic surveying party headed by

Lieutenant Marshall, a friend I had not seen for four years. That we should meet by accident in that lonely, untraveled country was an interesting experience. His topographer was ill so I was hired to take his place. To the maps I made of the mountain passes I surveyed at this time I attribute the beginning of my career with the Santa Fe.

"Having finished in that part of the country, Marshall and party returned to Trinidad, 50 miles away, but I stayed at an old hunter's cabin to nurse a frozen toe. Had I gone with them it is probable that I should not be where I am today. Often, you see, it is the small events that lay out the map of life.

"One morning while I was at the cabin, A. A. Robinson, chief engineer of the Santa Fe, happened to stop at my door. He was investigating the passes. Because of my maps which I offered to lend him and thereby save him several months' work, he became interested in me, promising me a job with his company as soon as there was an opening. The next spring, 1875, he hired me as a rodman at Granada, Colo."

For the next few years Mr. Turner centered his attention on constructing the western lines of the Santa Fe. Some of the outstanding experiences of his life came while he was engaged in this work, keeping him, as it did, in close touch with the development of New Mexico and Arizona. He was the first man to ride into New Mexico on a railroad and the first to run a passenger train into Santa Fe. In 1886 he married Miss Mary Ten Eyck at Topeka. By this time he had advanced steadily in his work and in the company's good regard, so that a year later he was appointed superintendent of the Middle division, and still later became assistant general superintendent under the late H. U. Mudge, taking charge of transportation from Chicago to Denver and El Paso to Purcell, Okla.

In January, 1902, Mr. Turner became vice president and general manager of the Pecos Valley lines with headquarters at Amarillo. He was taking hold of an incomplete, money-losing road when the territory was undergoing a new era of development. Later, homesteaders were pouring into the country by the thousands. Even a well established road would have had plenty to do to handle the traffic. So competent was the manager, Turner, that eight years later, when the Pecos Valley lines were merged with the Western Grand division they were on a fair financial basis with good roads and equipment. When this change took place Mr. Turner retained his position as vice president, director and land and tax commissioner.

William N. Doak

When Mr. McAdoo dismissed all railroad vice presidents President Wilson appointed Mr. Turner commissioner for the United States Railroad Administration. He went to El Paso then, and for a year handled the entire importation of laborers from Mexico. When this work ended he returned to Amarillo, resuming his old position as land and tax commissioner, which still keeps him busy.

Avery Turner's success has not been due so much to capacity as it was to his always being "Johnny on the spot." But there was more than this commendable quality in Turner's progress. A bandit may be "Johnny on the spot." It takes something else. Avery Turner had the qualities. They were and are sterling integrity, which is character; loyalty to his company, which is admirable but not unusual; the ability to lead men properly, which is by example and kindliness, and the energy that never spared himself. It is not too much by any means to say that in the active life he still pursues Avery Turner may take to himself the placid reflection of Cato, who said that in his old age the greatest comfort he had was the pleasing remembrance of the many benefits and friendly offices he had done for others.

Doak May Be in Cabinet

Despite all the patriotic activities of newspapers in selecting the incoming President's cabinet for him, re-arranging it as seems wise from day to day, nobody really knows in this country just Who's What until the evening of March 4 or the morning after—as a general rule. Of course gossip is permissible. The beloved Constitution takes care of that. But it

The Food Administration's Committee on Prices Which Recommended the Price to Be Paid for Wheat in 1917. Left to Right: J. W. Sullivan, G. W. Nasmyth, Secretary; Dr. H. J. Waters, W. N. Doak, R. Goodwin Rhett, Dr. H. A. Garfield, Chairman; Prof. F. W. Taussig, Theo. N. Vail, Eugene E. Funk, J. W. Shorthill, L. J. Tabor, Dr. Edwin F. Ladd.

would be considered extremely ill-mannered to name the actual cabinet, if the names were known before the President and the senate had acted.

However, all this newspaper talk is not so idle as some persons seem to believe. It is, really, the incoming President's barometer, the instrumentality by which he learns what might be the effect upon the public of certain contemplated selections. When the great dailies say someone has been decided upon or is being considered for this or that post in the cabinet the President-elect sits up with his hands cupped behind his ears to hear what the public says. And it doesn't take long, either, to get the reaction. Old newspaper men are familiar with the system and its operation.

So, when the New York Times announced, a few days ago, that William N. Doak had been selected for the post of secretary of labor in Mr. Hoover's cabinet the men and women who watch such things rather closely got up on their roofs, metaphorically speaking, and listened. And what they heard was very pleasant. Here is a post whose influence touches practically everyone whether he knows it or not, but particularly those who do the world's work from day to day. Of course we are all workers, for that matter, but those of us called laborers for lack of a better name, men and women, young and old, in field or forest, at the desk or loom, as Mr. Van Dyke puts it, in roaring market place or tranquil room—all these are concerned in the qualities, the humanness of the person selected by the new President to direct the department of labor.

The Times's announcement of Mr. Doak's name as really decided upon seems to have stirred popular approval, so sincerely indeed that everywhere the hope is expressed that the selection may be accurate. And, if this be true, then we are all immensely interested in knowing something about this gentleman.

If you are a railroad man you know William N. Doak. If you are interested in materials and supplies, the things of which transportation is made, you know him. If, perchance, you are not concerned with either of these activities, but are merely a citizen spending your money occasionally in transportation, shipper or passenger, you'll need to know Doak in the future. By the same token you should have known him long ago because he has been responsible for many of the safeguards of travel installed by railroads everywhere, but in some cases rather slowly, alas, until Doak came along. Sometimes all of us need to learn our duties from others. As vice president of the Brotherhood of Railroad Trainmen Mr. Doak has been a strong advocate of safety for human beings.

Doak was born in old Virginia in December, 1882, in Wythe County, and believe it or not, as they say in New York, he was born on a farm. Many of the nation's great men came out of Virginia, most of them from farms. A great state to choose for a birthplace; seven or eight Presidents and two Vice Presidents, Jefferson and Tyler, were born in Virginia.

But, after all, the state and the soil have little to do with the measure of a man. He must be big mentally as well as physically, big on his own account; no state can make him any larger than he is. A story used to be told, years ago, about Chief Justice Salmon Chase getting out of the train one morning for a platform-constitutional at a little town in Virginia during one of his journeys through the South. Stretching his arms above his head the Justice breathed deeply of the pure air and exclaimed, "What scenery, what air, what sunshine! And I understand Patrick Henry was born here."

"Yep," said a native, "But we've had the same air, same hills, same sunshine right along, and there ain't been no more Patrick Henrys."

Sometimes it is the blessed influence of a mother that makes a man great. Sometimes the urge comes from a devoted, believing wife. Once in a long while father gets credit for the wonderful offspring. William N. Doak had good ancestry all along the line. You find them down in the Old Dominion, and you realize, perhaps for the first time, that blood does count. Doak is a good example of it. He had the best schooling he could get in his home county. But money was scarce and as happens so often, he had to go to work. It doesn't matter very much who you are, even in Virginia, or who your great grandfather may have been; you do have to work. All the ancestry this side of kingdom come won't pay grocery bills.

Bill Doak had to earn his living, so he got a job with the Norfolk & Western at Bluefields, Va., as a yardman. He still has a 30-year seniority down there. After a while, sooner than anyone expected it, he became general chairman of the Brotherhood of Railroad Trainmen on the whole Norfolk & Western System. Eight years later he was vice president of the brotherhood and national representative for the organization at Washington. He has been a force, too, for good things for the

(Continued on Page 40)

The Institute of Transport At London

—Wide World Photo

Escalators, Being Finished for the Opening December 10, Make Lifts, That Is to Say Elevators, Unnecessary at Piccadilly Circus Station.

By

A. Winter Gray

Secretary

OF ALL THE professions related to the commerce and industry of the British Empire, transport was the only one which had no corporate unity. The Institute of Transport was founded in 1919 to create that corporate unity; also to promote and encourage a knowledge of traffic science and the art of transport in all its branches. It was the realization of an ideal long advocated, and its foundation met a much felt want. The institute has continuously gathered strength and now its members are to be found in practically every civilized country throughout the world.

The framing of an educational and examination policy engaged the attention of the institute almost immediately after its foundation. The second president, the Rt. Hon. Lord Ashfield of Southwell, whose name and achievements are equally well known on both sides of the Atlantic, devoted to that important subject the whole of his inaugural address. In it, he expressed the wish that his presidential year might be dedicated to laying down a policy and developing a plan which would deal with the educational activities and aims of the institute. In conclusion, he suggested that the institute should nominate a committee to review in detail all the steps that had been taken, and to consider what further steps could be agreed to execute the purpose of attending to the training of those upon whom the great responsibility of directing traffic will fall.

Shortly afterward, a special committee was appointed. After surveying the field of existing and prospective transport educational facilities, it reported that "it believed the educational aim would most effectively be secured by arranging qualifying examinations by the institute under its own examiners." Later it was decided that, beyond the continuance of sessional programs of meetings and lectures, to confine the efforts of the institute to periodical examinations and to collaboration with universities and other educational institutions in providing courses of training to meet existing transport requirements; also to stimulate a wider conception of the inevitable developments of the future.

The special committee, having completed its labors, a permanent education committee was appointed. Some of the first difficulties this committee had to surmount were: the wide field of transport operation, economics, and administration to be covered (i.e., rail, road, port, inland waterway, and air); the absence of any complete or comparable examination scheme; the dearth of special training facilities and text books; and the lack of examiners combining professorial qualifications with practical knowledge and training.

Notwithstanding these disabilities, the committee framed regulations and syllabuses in 1924 governing the graduateship and associate membership (traffic section) examinations and compiled a list of exempting examinations. These were followed in 1925 by a complete syllabus embracing all four sections of the associate membership examination, namely, operation, engineering, audit and legal. In its responsible task the committee was fortunate in securing the assistance of leaders of all branches of transport and of representatives of many of the principal universities.

The institute scheme, which is not considered to be exhaustive or incapable of improvement, is designed normally to cover a three years' course of training to qualify for the associate membership examination. It emphasizes the importance of some knowledge of economic science, of

This Is the Booking Hall, Otherwise Ticket Offices, of the Great Underground Station At Piccadilly Circus.

the methods of modern business, and of statistics and their proper use as a means of appreciation and criticism of tendencies and results. The objects of the scheme are fourfold:

To outline courses of study for those who desire to succeed to higher responsibility in the transport world.

To indicate lines upon which specialized instruction in transport subjects may be given.

To encourage research and widen the field of investigation and application of transport science and,

To afford to the individual an opportunity not previously available of giving evidence of a knowledge both of the fundamental principles of transport and of their practical application.

As a result of overtures made to the foremost educational institutions throughout the country, numerous courses of transport study have been provided, and more are contemplated. One, at least, of the universities is considering the advisability of establishing a complete course for evening students.

The institute examinations have encouraged the production of many text books, including a series covering all phases of transport, the first volumes of which already have been issued by a well known firm of London publishers.

As before stated, the policy of the institute is to foster the provision of courses of organized study, preferably of university standard, rather than act as a tutorial body. Its younger members are, however, encouraged to attend either the ordinary meetings held in London during each session (October to June), or those of the local sections whose respective headquarters are situated at Manchester, Birmingham, Leeds, Newcastle-on-Tyne and Bristol. At these meetings, papers bearing on all phases of transport are read and discussed. Graduates and students enjoy the privilege of attending the annual congresses of the institute. These are held in various parts of the country and usually occupy three or four days. The morning sessions are devoted to the discussion of theses, again covering all forms of traffic and transportation, and the afternoons to visits to places and works of transport interest. In addition, graduate and student societies have been established, at the monthly meetings of which the members meet and discuss the problems with which they are brought into daily contact. The papers and the reports of the discussions which follow are printed and published in the journal of the institute.

In cooperation with the London School of Economics, lectures have been delivered on road transport economics and dock economics and administration. These have been appreciated as a supplement to the excellent railway courses provided by the school.

The council of the institute offers for award two silver medals every year, one each for the best paper or contribution submitted by a graduate and a student. In addition, there is available a premium of five guineas presented by a transport journal for the paper by a graduate or student judged next in order of merit to that which receives one of the institute medals.

The institute is especially fortunate in that the principal transport undertakings have generously presented gold medals for award yearly for the best papers or contributions submitted and dealing with these subjects:

Railway operation.

Railway engineering.

Road transport (passenger).

Road transport (freight).

Aerial transport.

Water transport (docks, harbors, coastwise shipping).

Inland water transport.

Dock and harbor administration.

In addition, the institute offers every three years a special gold medal for the best contribution to its proceedings during the period covered.

It should be stated that the institute examination scheme did not come into operation until October, 1925. Prior to that date, persons possessing clearly defined positions of official responsibility were elected to corporate membership without being required to pass an examination. Ultimately, election or admission to the institute will be by examination.

It may be of interest to detail the qualifications candidates for election to the institute are required to possess.

Students must be at least 18 years old, engaged or desirous of being engaged in traffic or transport, and produce satisfactory evidence that they have passed a qualifying examination, generally speaking, equal to the matriculation examination or entrance examination of any recognized British university.

Graduates must be not less than 23 years old, have had experience in traffic or transport for at least three years and be so engaged at the time of election, and have passed or been exempted from the examination at the time being required to be passed by all persons seeking to be admitted as graduates.

Associate members are persons of 25 years old and upward who have had experience involving at least five years' official responsibility in dealing with traffic or providing transport or works connected therewith, and be so engaged at the time of election, and have passed or been exempted from the associate membership examination.

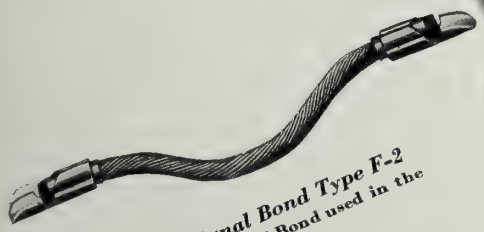
Members must be not less than 30 years and have had experience involving at least ten years' official responsibility with a recognized transport

CONGRATULATIONS

The American Steel and Wire Company wishes to tender a deserved tribute to the Great Northern Railroad and A. Guthrie and Company, contractors, on the successful completion of the Cascade Tunnel.

It was a tremendous project nobly conceived and ably executed, truly an epoch making achievement.

This Company naturally takes pride in the fact that its Flame Weld Bonds were used in the electrification of the tunnel, thus playing some part in this great forward step in transportation.



Flame Weld Signal Bond Type F-2
This is the type of Signal Bond used in the Cascade Tunnel.

Application of Flame Weld Bond
This shows the double application of Flame Weld Bonds used in the Cascade Tunnel.

American Steel & Wire Company

Subsidiary of United States Steel Corporation

Offices in—Boston, Chicago, Cleveland, Worcester, Philadelphia, 208 So. LaSalle St., 30 Church St., New York, Cincinnati, Baltimore, Wilkes-Barre, St. Louis, Kansas City, Pittsburgh, Buffalo, Detroit, Oklahoma City, Birmingham, Atlanta, Memphis, Dallas, Minneapolis-St. Paul, U. S. Steel Products Co.: San Francisco, Los Angeles, Denver, Salt Lake City, Portland, Seattle.
Export Representative: 30 Church St., New York City

undertaking, or have been associate members for a minimum of five years, and be elected by the council either by examination or under such regulations as shall from time to time be decided upon.

There are also grades of honorary members and associates. The institute examinations are graduateship, and associate membership, the latter subdivided into four sections, namely, traffic, engineering, audit and accounting, and legal.

It is the established policy of the railway companies of Great Britain and of other British railways to provide educational facilities for their employes with a view to qualifying them for positions of greater responsibility, but it is the desire of the Institute of Transport to go a step farther and promote still closer collaboration between transport undertakings, universities and the institute, in order to produce and bring into operation a scheme of education and examination, and to establish a diploma which will meet the needs of all concerned and be recognized as evidence of adequate vocational training; also to encourage all universities to found a degree in transport. The consummation of this ideal will enhance the reputation of British transport men, and secure for them that large measure of recognition which the services they render to the community so amply merits. This adequate acknowledgement is the prerogative of transport officials in every part of the world.

(Continued from Page 36)

men he represented, for the railroads employing them, and for the public that used the services the men and the roads had to offer.

You have to understand something of the elements entering into this service before you grasp the full import of what Doak has been doing, year after year. He is quiet, rather unassuming, far more simple in his tastes and habits, his way of living than many others far below him. Ordinarily the great panjandrum known as the Public hasn't the faintest conception of what men like Doak do for it. But the men of the brotherhood know, and so do the railroad managements. For one thing they know that he has been largely responsible for the adoption by railroads of safety appliances of various kinds to overcome injuries and loss of life among employes, and naturally among the public because the safer you make the men the more you do for the travelers. Probably nothing he has done in this way has been more important than his advocacy of automatic air hose connectors which make it unnecessary for men to go between cars in coupling or uncoupling train line hose. In this activity Mr. Doak had the earnest help of the Interstate Commerce Commission and the Board of Railway Commissioners of Canada. Subsequently a committee to study this one subject was appointed by the American Railway Association.

These are the things that count. These are the records that show what kind of man Doak will turn out to be if the new President should select him for the post described. In the first place, one important thing to remember, William Doak understands work, and this is more than can be said of some cabinet officers in generations gone by. A. F. Whitney, president of the B. R. T., at present Mr. Doak's immediate superior officer, says Doak is a fiend for work. Whitney says Doak has great ability and force in doing big things quickly. He has, too, unusual facility in forming friendships that endure among the men of money as well as among the men who work for it. Some of the country's biggest railroad executives speak highly of Doak; and these men are not given to careless words.

Doak believes sincerely in the things he undertakes. He believes that neither capital nor labor should be imposed upon, that both should be protected just as far as it is humanly possible to do it. These ideals he has consistently advocated as editor of the Railroad Trainman, the official magazine of the brotherhood.

As might be expected he has had to take a part in the national politics, as every citizen should. He is a good organizer, as he had real need to be in his job with the B. R. T., and possibly it was because of his reputation in this respect that Herbert Hoover chose him to take charge of the labor end of the recent campaign. Mr. Hoover was not disappointed. The result shows it. However, the new President may be certain about one thing: If William Doak is to be the next secretary of labor the appointment will not be merely a well deserved tribute for work in the campaign days. It will be the proper placing of the right man for a really big job he will know how to handle.

Favors Six Wheel Trucks

By Walter Raleigh

For better and cheaper transportation, the six-wheel vehicle and pneumatic tires. Automotive and highway engineers are constantly seeking more economic transportation. Highway engineers have always been faced with the problem of producing the greatest mileage of serviceable roads, and have been forced to design them as light as possible, consistent with traffic demands. On the other hand, truck operating costs are generally reduced by increasing the pay load capacity.

To preserve the existing highways and to give economic transportation, the six-wheel truck, with a limitation of wheel concentration and pneumatic tires, and not the limitation of gross load, is the solution of the problem, Thomas H. MacDonald, chief of the bureau of public roads, says.

According to the investigations of the bureau, all conditions of test being equal, the effect of a six-wheel vehicle on the highways is about one-half that of the four-wheel. This is the first of two important reasons for the six-wheel truck. The other is, that increasing the number of wheels so reduces the load on each wheel as to permit the use of pneumatic tires on the larger-sized trucks, which can not be so equipped when supplied with only four wheels. The pneumatic tire reduces the impact of the moving truck and so tends further to protect the highway. The bureau's tests show that the impact of a solid tire exerts a pressure on a pavement two or three times the standing load, while the pressure exerted by the pneumatic tire is only a small percentage above that of the load at rest.

Cooperative highway transport surveys, carried on by the bureau and various state highway departments, have shown conclusively that, for general use, the five-ton, four-wheel truck is today the maximum size required. Its wheel concentrations are within the safe load limit for the modern standard types of rural pavements. But there is a very large mileage that is not safe for loads beyond this. It is to protect this large mileage and at the same time permit the operation of large-capacity trucks wherever desirable that the federal road chief suggests the six-wheel solution.

LEADERSHIP

THE little world protested that Fulton could never build a steamboat that would be *useful*, while the big world flocked to the river banks to see his boat steam by.

The masterpiece, whether in art, literature, music, or industry, ultimately gains and holds its laurels.

That which is truly good makes itself known.

That which deserves to live—lives.

To condemn without investigation avails nothing, save to hamper progress—the bulwark of civilization.

The great rewards are to those who take the lead.

ROBINSON AUTOMATIC CONNECTOR

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New York

Complete information on request

The L. R. & N. Bridge

The accompanying illustration shows the Louisiana Railway & Navigation Company's steel bridge recently completed across the Atchafalaya River at Simmesport, La., for joint railway and highway traffic use. This bridge, including approaches, is 2,000 feet in length, has two 300 foot fixed river steel spans, one 300 foot draw steel span and two 150 foot bank steel spans, with five concrete river piers and two concrete bank piers. The draw span has a vertical navigation river clearance of 75 feet and a horizontal navigation clearance of 130 feet, the distance from top of piers to low water gauge being 63.4 feet.

Construction work was started by the late William Edenborn, owner of the Louisiana Railway & Navigation Company, with Ira G. Heidrick of Shreveport, La. as supervising engineer October 1, 1925, and was completed for rail traffic April 15, 1928 and for highway traffic June 27, 1928. One of the piers was lost and was reconstructed by the Kansas City Bridge Company of Kansas City.

The construction of this bridge necessitated abandonment of 20 miles of main line track from Moreauville to Naples, La. and construction of practically 20 miles of track from Moreauville through Simmesport to a Mississippi River west bank point directly opposite Angola on the east bank, the project costing more than $2,000,000.

The new route made possible by this bridge eliminates an eight mile river transfer and reduces freight schedule time on freight traffic between points east and west of the Mississippi River 12 hours, enabling the handling of traffic between New Orleans and Shreveport, 305 miles, in less than 20 hours. This is the only bridge across the Atchafalaya River for highway traffic. The bridge was especially designed for highway use in addition to railway use by increased width providing a 16 foot 4 inch steel plate flooring double driveway, this additional provision being made at the cost of $325,000.

What About Interest for 31 Years?

An old man shuffled up to the ticket window of the Southern Pacific office at Ontario, Cal., one day last month, with a strange tale to tell. As it involved a confession of crookedness he declined to give his name. "I'm 90 years old now," he said, "so why spoil a record otherwise clean? It's my conscience I want to quiet."

In 1898, he said, he moved his family to California on an emigrant train from a town in Iowa. He had a lot of youngsters but not much money. By the time he paid for having his household goods shipped and had bought tickets for his family, he didn't have quite enough to pay the railroad fare for one youngster. Consequently, he made a special packing box into which he tucked the boy and had it sent to the station with the rest of the freight. The lid was so fixed that the boy could open it from the inside and stretch himself when none of the trainmen was near. The ruse worked and the family reached California.

What, the man inquired, was the fare 31 years ago for the boy from Iowa to California? It was necessary to check back to the Iowa office through Omaha, Ogden, Sacramento, San Francisco and Los Angeles, but the agent did it and learned what the emigrant fares were in those days. When the news came the old man paid the 31-year-old charge and went away happy. But before leaving he told the agent that the ride in the packing box must have turned the boy's ambition toward a railroad career, as today he is a conductor on the Union Pacific.

Women Like Air Transport

Word comes from Croydon, (London) that more women than men are traveling by airplane on the famous route from London to Paris and return. Within the last four years more than 40,000 women have flown in Imperial Airways machines.

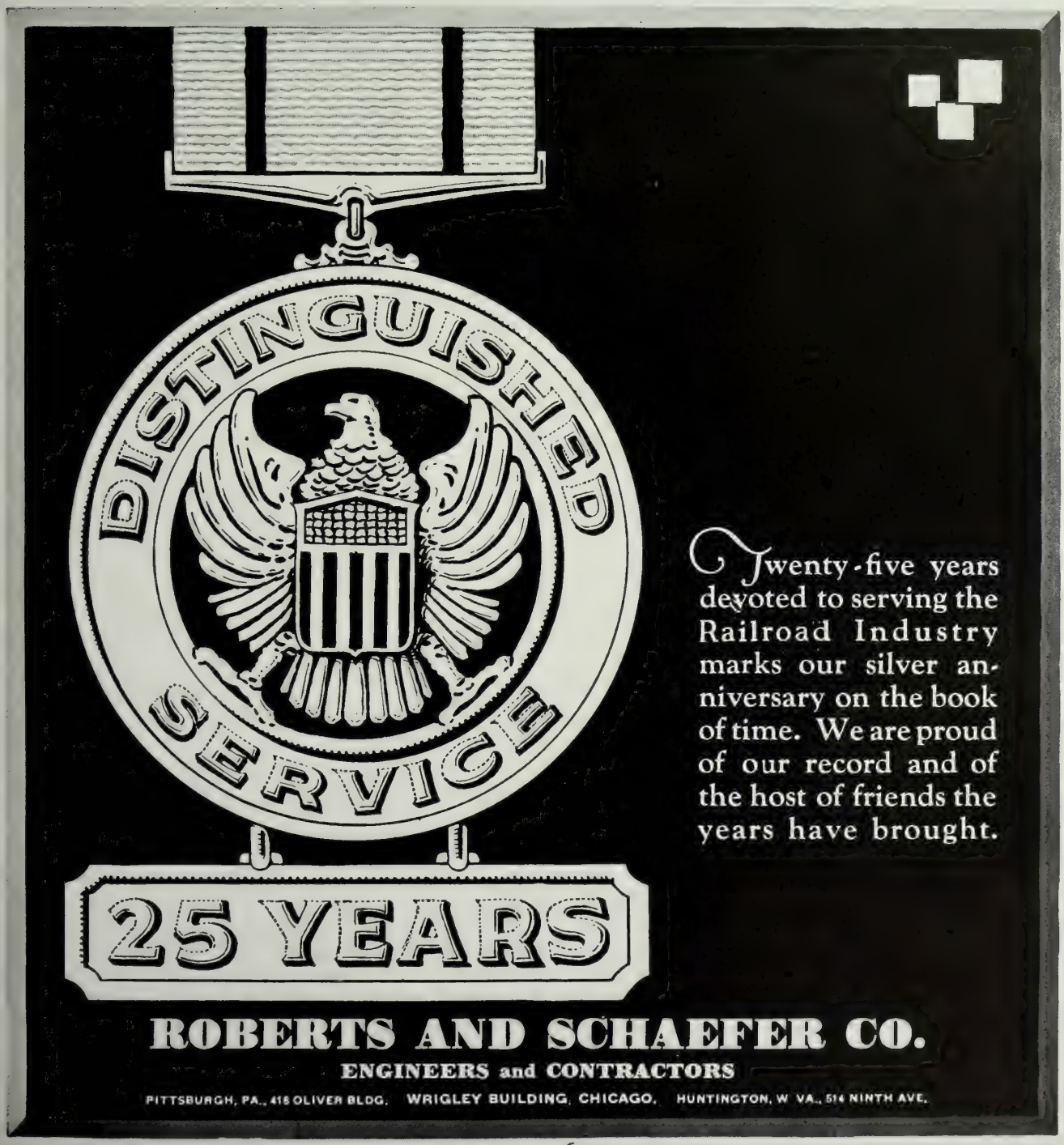
On the Air Union line 54 per cent of the passengers were women, compared with 42 per cent last year. Twenty business women from the United States chartered an airplane recently to go to Paris. The largest party of women numbered 41; they were accommodated in several machines.

He is great enough that is his own master.—*Bishop Hall.*

The New Steel Bridge of the Louisiana Railway & Navigation Co., Recently Built Near Simmesport, La., Across the Atchafalaya River.

ROBERTS AND SCHAEFER CO.

ENGINEERS AND CONTRACTORS
CHICAGO, U. S. A.



MODERN skip type automatic Locomotive Coaling Plants unquestionably afford a railroad the opportunity for making substantial savings in handling locomotive coal as compared with antiquated installations that may be in use. On one railroad this month the operating officers advised us, after inspecting one of our modern plants, that they could by replacing one of their old structures, effect a saving of $28,000.00 a year in handling coal to locomotives at that point. We are ready at all times to submit special designs and prices for which we will undertake the work, turning the entire facility over in successful service. We sublet *no* construction contracts—do and always have completed our work with our *own* forces. We, therefore, solicit interviews with railway officers, looking towards such improvements and savings, without charge on our part or obligation on yours.

Gasoline Shovel and Twelve-Yard Carts, Pulled by Tractors, Leveling Ground for the Southern Pacific Yards At Fresno, Cal.

Here's a Grading Record

By C. W. Geiger

THE KAISER Paving Co. of Oakland made a record in the construction of the new Southern Pacific freight yards near Fresno. These yards are two miles in length and 700 feet in width. The grading job contract called for completion in 120 working days but it was practically completed in 90 working days, due principally to the use of the special earth moving equipment of unusually large capacity. The grading included the moving of 227,000 cubic yards of material in the yard proper and 12,000 cubic yards in the roadway beside the yard. The new freight yard is immediately adjacent to the main line two miles north of Fresno. Cuts eight feet deep and fills up to five feet were involved.

The material was excavated by a power shovel and loaded into 12 cu. yd. capacity two-wheel carts, each pulled by a tractor. The longest haul with this equipment was 3000 feet. The carts are of special design with rear dump, top hinge gate released by a catch pulled by the dump man. The tractors had the toughest kind of abuse, the governors were removed and the machines overloaded in a drive to complete the job in record time.

Twelve cubic yard telescopic scrapers pulled by tractors were used to pick up thin layer of material, as in long distance land levelling. Twelve cubic yard land levelers were used for skimming and light filling on short hauls. The earth was loosened by a special hydraulically operated rooter. Motor sprinklers were used to wet down the stretch over which the tractors traveled, to reduce dust and improve traction.

An irrigating ditch which ran diagonally across the yard was turned into an inverted concrete siphon running entirely across the yard under all tracks, including the main line and adjoining highway. The material was the toughest kind of hard pan, which was easily broken, however, by the hydraulically-operated rooter pulled by two tractors. Fifteen tracks are being laid through the new yard by the Southern Pacific forces, but eventually this will be increased to a total of 32 tracks. The grading operations were carried on day and night, special lights having been installed on the equipment to facilitate night operation.

From Train Butcher to Magnate

Just imagine a train butcher starting out in life deliberately to be a railroad owner! That was about 1900 and Samuel R. Rosoff was working on the New York Central trains for a news company with not very much money at any time, but a world of ambition brought to this country from Russia. Sam had had about the usual amount of schooling that such boys get in this country, had been obliged to quit educational pursuits and hustle at a pretty early age. At an early age also he got into the contracting business in New York, mostly in subway work and sub-contracts, and with the pertinacity of his kind he stored away his earnings.

To tell the whole story would take too much space, although it is worth a volume for its value in encouragement for boys. Suffice it to say, as the novelist would put it, Sam owns his railroad. Not long ago, in January, indeed, he and a few friends bought the Delaware & Northern Ry., a road which may have escaped our notice in the rush for traffic. But it's a railroad in Delaware County, N. Y. Its properties consist of about 50 miles of track between East Branch and Arkville, with about 60 pieces of rolling stock. But it cost the former candy boy almost a million dollars to buy the road, at a price figured to represent 10 cents on the dollar, from the receivers who had been operating it for several years.

Rosoff's railroad is not to be a toy, however, but has very clear possibilities of returning its owner a handsome profit. If the large reservoir projected by the city of New York is erected on the east branch of the Delaware River it will be necessary for the city to buy some two-thirds of the Delaware & Northern's trackage. Rosoff, however, stated that this possibility was not foremost in his mind when he acquired the property.

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BOUND BROOK, N. J.

General View of the Handsome Tunnel Recently Finished Under the Estuary Between Oakland and Alameda.

Oakland-Alameda Tunnel Open for Business

By C. W. Geiger

THE OAKLAND-ALAMEDA Estuary tunnel, opened recently, is the first vehicular tunnel constructed west of Chicago, and is said to be the first of such tunnels built by making precast sections, sinking them into place and then connecting them. While the subway is not the longest it is said to be the largest in the world in cross-section, being 37 feet in diameter outside and 32 feet in diameter inside. The total length of the tube is 4436.5 feet, of which 3545 feet are covered and provided with mechanical ventilation, lighting and signals.

The roadway provided is for two lanes of traffic, one in either direction. The width between the curbs is 22 feet 10 inches; between sidewalks 24 feet 8 inches. An elevated sidewalk 3 feet 5 inches wide is provided on either side of the roadway, with pipe guard rails and step niches to the roadway at 194-foot intervals.

Niches in the walls at intervals along the subway, adjacent to both sidewalks, provide telephone communication with the offices in the portal buildings, or the telephone central. Every 500 feet there are stations which include niches for fire alarm boxes, police boxes and fire extinguisher and telephone. Fire hydrants are placed every 240 feet, being set under the sidewalk, access to which is gained by a steel door. Each fire hydrant is equipped with a 2½-inch reel of hose, the entire system being connected with a 3-inch water main extending the entire length of the subway. In addition to supplying fire protection the water hose is used for washing down the floor of the subway. Niches for fire extinguishers are arranged in the walls of the subway every 200 feet. Access to these fire extinguishers is obtained from the sidewalk.

The lighting of the subway is by artistic electroliers on the approach sections and by two rows of electric lights within the subway suspended from the ceiling and placed at 20-foot intervals. The lights are so controlled that every other light can be extinguished.

The tube is mechanically ventilated by the "Continuous Transverse Ventilation" system. Fresh air is supplied by eight blower fans, there being four blower fans in the Oakland portal or ventilating building and four in the Alameda portal. There are also four exhaust fans in each of the ventilating buildings, making a total of 16 fans. The maximum amount of fresh air which may be supplied is approximately 1,000,000 cubic feet a minute, which will provide for limiting the amount of carbon monoxide to four parts in 10,000 parts of air for the worst possible traffic congestion of both lanes filled with cars and with engines running, and will change the entire volume of roadway air 40 times an hour.

The fans are operated automatically by means of carbon-monoxide recorders installed in the operating rooms of the portal buildings which automatically turn the required horsepower on or off according to the carbon monoxide content emitted by the automobiles passing through the subway. In case of emergency or when the carbon monoxide control equipment is shut down the fans will be operated under the same combination of schedules by means of a program clock working the same combinations as the carbon monoxide recorder, but according to schedule as prepared on the clock tape. The fans can also be operated by push button control from the operating rooms or manually.

The precast sections referred to in the beginning were cast in San Francisco, about ten miles from the subway. In order to make the sections float so that they could be towed across the bay they were bulkheaded with concrete and heavy timbers. Each section was towed across the bay by tugs and later lowered into a previously dredged trench. Sand and water were used as ballast in sinking the sections into place. Concrete grade piers were set accurately to line and grade in the bottom of the dredged trench to receive the sections. After the floated sections were placed together accurately on the grade piers, clean sand filling was sluiced under and around the sections to form a firm foundation on the tough clay which was encountered nearly the entire length of the subway, except on the Alameda side, where a layer of deep mud was found. Under the Alameda approach section, Alameda ventilating building and the first two sections adjacent thereto, wooden piles were first driven through the mud and then a layer of tremie concrete placed around them to form the supporting foundations for this portion of the subway. The tremie blanket under the first two sections was poured over and around the piles in the form of a cradle and at an elevation below the bottom of the sections, to allow three feet of sand to be sluiced under. After the sand had been placed approximately up to the horizontal diameter water was pumped into each tube to settle the section on its sand bed properly, after which tremie concrete was poured entirely around the southerly joint. The joints were filled from the outside, the sections back-filled in order to hold the tube in place, and then the water was pumped from the inside of the sections to unwater them. Interior bulkheads were then removed and the sections connected inside at the joint by means of a concrete lining containing reinforcing steel.

SMALL WAYSIDE TREATING PLANT

5000 Gal. Per Hr. Cap.

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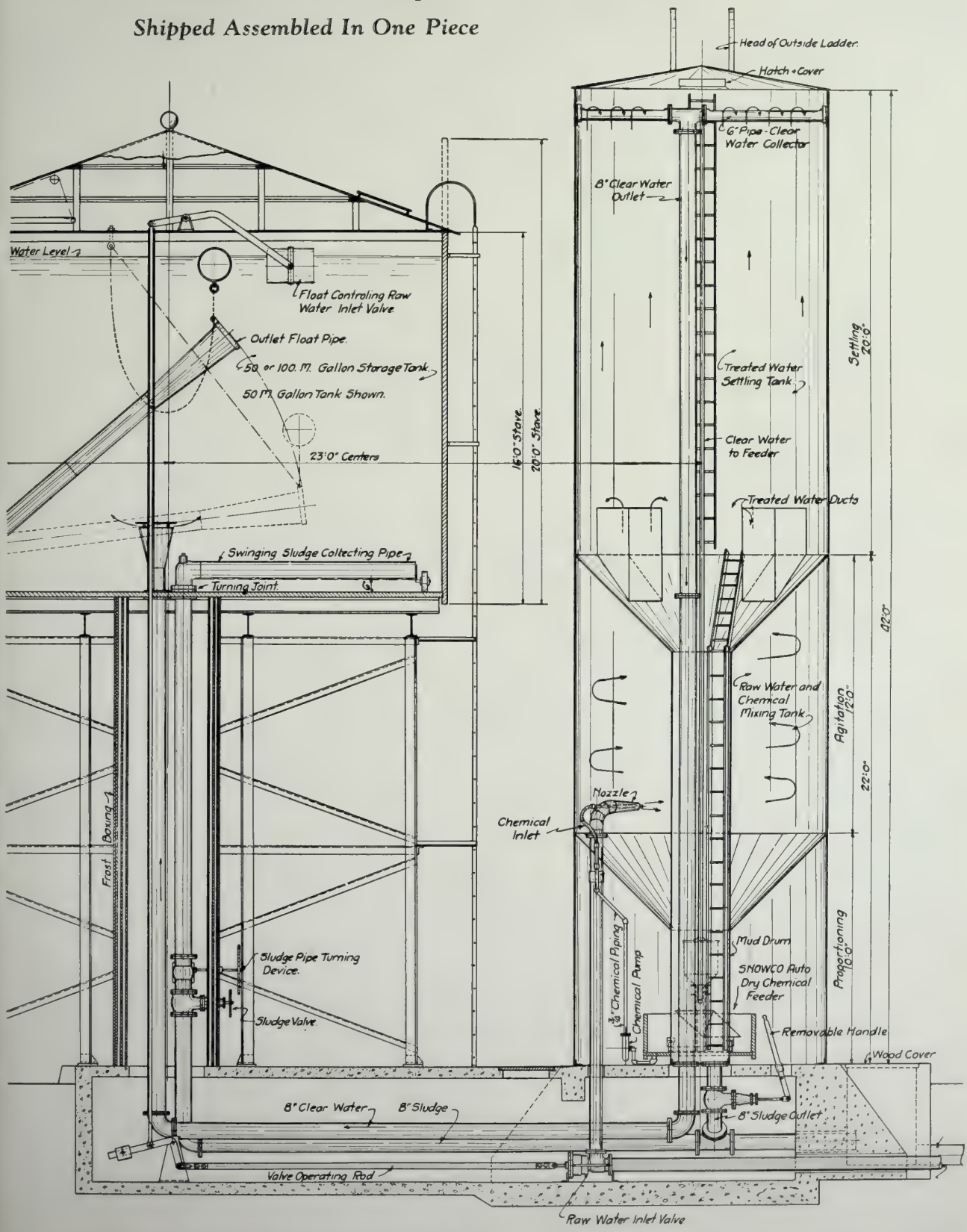

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The News of the Month

What's Been Going on in Transportation, Railroads, Automotive, Supply, Aviation

THE THIRTIETH annual meeting of the American Railway Engineering Association will convene in the Palmer House, Chicago, March 5, 6 and 7. The sessions will be held in the grand ball room at 9:00 a. m. and 2:00 p. m. daily. The annual meeting of the A.R.E.A. is also the annual session of the construction and maintenance section and of the electrical section, Division IV—engineering, American Railway Association, the sessions being concurrent.

The business to be transacted will be the consideration of and action upon reports of standing and special committees, as follows:

Roadway, Ballast, Rail, Track, Buildings, Wooden bridges and trestles, Masonry, Grade crossings, Signals and interlocking, Records and accounts, Rules and organization, Water service and sanitation, Yards and terminals, Iron and steel structures, Economics of railway location, Wood preservation, Electricity, Uniform general contract forms, Economics of railway operation, Economics of railway labor, Shops and locomotive terminals, Cooperative relations with universities, Rivers and harbors, Standardization, Clearances, Stresses in railroad track.

Pacific Electric Reduces Accidents

A reduction in accidents of 14.3 per cent, in which Pacific Electric cars, trains and motor coaches were involved during 1928 as compared with 1927 is announced by D. W. Pontius, vice president of the railway.

"In 1928," the announcement said, "there were 1056 fewer accidents of all classes. The decrease last year was the sixth consecutive year that Pacific Electric traffic accidents have been reduced. In 1923 the total number of accidents reached 10,486. In 1928 the number was 6,330.

"An outstanding feature of the 1928 record is the fact that not a single fatality to passengers on Pacific Electric trains resulted in the 35,000,000 miles which its passenger equipment traveled during 1928."

Cotton Belt Goes Into Motor Field

The transition from rail to highway in the transportation field, finds the road familiarly known as the Cotton Belt Route, and the Southwestern Transportation Co., a newly organized transportation unit, coordinating passenger, mail, baggage, express and light freight service in territory formerly served only by the railroad. With the volume of freight traffic over the Cotton Belt Route showing a progressive increase, there has been a progressive decrease in passenger traffic. Convinced that modern motor coaches operated on more frequent schedules would give the public better service than local passenger trains, the Cotton Belt Route voluntarily relinquished this traffic to the Southwestern Transportation Co. Daniel Upthegrove, president of the St. Louis-Southwestern and also of the Southwestern Transportation Co., with traffic representatives of both transportation organizations, met in a conference with municipal officers, commercial and civic organizations, and other interested citizens, and explained the change in service from local trains to highway motor coaches and motor trucks.

Through the purchase of existing motor bus and motor truck lines, and the extension of service through the addition of new equipment and more frequent schedules, the highway mileage operated by the Southwestern Transportation Company at the close of the year 1928, reached a total of 9,346 miles a day. This service began October 5, 1928. It is estimated the total operation will amount to not less than 4,000,000 miles during the current year.

Railroads Must be Protected

Of a total of 444 automobiles damaged during 1928 by collisions with Frisco trains, 132 of the accidents were caused by motorists driving into the trains. Sixty per cent, or 265 of the damaged automobiles, were struck by Frisco engines and cars. Five per cent, or 25 automobiles, were struck by engines or cars because the automobiles were left parked too close to the tracks at passenger and freight depots. Of the remaining 5 per cent eight automobiles were driven against barricades built near railroad crossings; six struck railroad switch stands; five ran through crossing gates; four collided with section motor cars, and one missed the crossing and crashed into the ditch.

It's An Old Story Now

A loss of a million and a half passengers in and out of the North Station, Boston, during 1928 is shown in a report from the Boston & Maine. This loss in rail passengers, 1,542,944, is in line with the continuous decline since 1920, which has now reached 11,093,213, or 33 per cent as compared with that year. Single fare riders on the system since 1920 have declined from 18,243,916 to 8,302,094, or 54 per cent; monthly ticket holders, decrease 38 per cent; other commuters (mainly holders of 12-ride tickets) have declined 42 per cent, and long distance (interline) riders are fewer by 30 per cent. The decline for all classes of commuters over this 8-year period has been 14,216,268 or 41 per cent. These figures, showing the greatest declines in short haul business, support the contention that most of the loss in passengers is attributable to private automobiles. These losses are still continuing at an average rate of more than 100,000 a month for the Boston North Station alone. The total of passengers in and out of that station in 1928 was 22,820,377. This is 11 million below 1920 when 33,913,600 were carried in and out, and compares with 24,363,321 in 1927.

More Rail and Bus Service

The Pennsylvania Railroad has announced the beginning of a plan which eventually will produce complete coordination of rail and bus passenger service on its lines. Under this plan, passengers who choose may travel across the country in motor buses by day and in railroad sleeping cars by night, over certain specified routes, selecting sections noted for their scenery and places of interest for the bus travel. The new rail-bus service will be established progressively, beginning in the East.

Daily ferryboat service for vehicular traffic between the Exchange place ferry terminal, Jersey City, and the Atlantic avenue ferry terminal in Brooklyn, N. Y., was started January 19 by the Pennsylvania Railroad. Two twin-screw ferryboats, capable of handling a total of 2,240 automobiles on the 64 trips they will make daily, were put into operation.

Air-Rail Service to El Paso

Air-rail service between Los Angeles and El Paso began officially February 4, when 8-passenger cabin planes of the Standard Air Line Co. completed flights between the two cities. The schedule adopted, it was said, will save 18 hours between Los Angeles and Texas and other points east. The eastbound plane left Los

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Angeles at 8 a.m. It stopped at Phoenix, Tucson and Douglas, Ariz., and arrived at El Paso in time for passengers to connect with trains for St. Louis, New Orleans, Kansas City and the East. At 9 a.m. a plane left El Paso for the West and landed in Los Angeles shortly after 4 p.m. Both planes carried full loads. The flight to El Paso is made in eight hours. By rail the distance is 815 miles.

Motor Vehicles Show Big Increase

Official figures show the registration of motor vehicles in the United States totals 24,592,370, an increase in the past twelve months of 1,463,055. Passenger cars gained 6.2 per cent and trucks 7.2 per cent. New York state leads in the number of vehicles in use, followed in the order named by California, Ohio, Pennsylvania, Illinois, Michigan and Texas. Approximately 1,800,000 previously in use were scrapped during the year, all of which have or probably will be replaced with new ones.

The increase was the largest ever recorded in any one year.

Getting Ready for the Tokio Congress

The organizing of 90 local committees organized to aid in recruiting a large delegation of American engineers to attend the forthcoming World Engineering Congress at Tokio, has been announced by Dr. Elmer A. Sperry, chairman of the American committee arranging participation in the event, and president of the American Society of Mechanical Engineers. The local committees represent every section of this country, Panama, Mexico and Canada where there are engineering activities, and include membership of engineers of every branch of the profession. These committees will work with the various sub-committees of the American committee, of which President-elect Hoover is the honorary chairman, to create a sustained interest between now and the opening date of the Tokio congress, definitely set for October 29, 1929. It is planned to keep them in close touch with developments through the committee on promotion and attendance, headed by George W. Fuller, consulting engineer of New York City.

The Cotton Belt's Program

The Cotton Belt Route is to spend $3,683,339 for line revision and grade reduction between Mt. Pleasant and Waco, Texas. The cost of eliminating curves and reducing grades between Mt. Pleasant and Tyler, Texas, has been contracted at $2,183,339. This work is more than half finished. In addition, 85-pound steel rail, with tie plates and anchors, and with gravel ballast, has been laid between Greenville and Ft. Worth. The laying of the new steel rails between Mt. Pleasant and Tyler, which is being followed with gravel ballast, will be completed June 1. This provides the Cotton Belt with rail operation over new steel and ballasted track from St. Louis to Mt. Pleasant, Tyler, Dallas and Ft. Worth.

In addition to its grade and line revision and ballasting program, the Cotton Belt will add $300,000 worth of new tools and equipment this year in further improving its general shops at Pine Bluff, Ark., and Tyler, Texas, and its other repair facilities at Illmo, Mo.; Jonesboro, Ark.; Shreveport, Texarkana, Mt. Pleasant, Commerce, Ft. Worth and Waco. Work is in progress constructing new Cotton Belt yards at Tyler which will cost $621,000, facilitating the increasing movement of freight over the line between Mt. Pleasant and Waco, and points beyond.

He'll Be There Until 1931

A bill was introduced early this month by Senator Sheppard of Texas to compel railroads operating in interstate commerce to use steel or steel underframe passenger cars after January 1, 1931. Senator Sheppard's term will expire March 4, that year. He was born in Arkansas.

Such Success Must be Deserved

A preliminary report from the Missouri Pacific Ry., for the year ended Dec. 31, 1928, shows a net income of $9,512,690 after taxes and charges, equivalent to $13.25 a share earned on 718,001 shares of preferred stock, on which there is an accumulation of unpaid dividends. Allowing for only 5 per cent annual dividend requirements on preferred, the balance is equal to $7.15 a share on 828,395 shares of common stock. This compares with $4,401,196 or $6.13 a share on preferred and 98 cents a share on common stock in 1927.

A. S. C. E. Elects

The following officers have been elected by the A. S. C. E., to serve in 1929: President, Anson Marston, dean of engineering, Iowa State College; vice president zone two, Arthur J. Dyer, president of the Nashville Bridge Co.; vice president zone three, Alonzo J. Hammond, chief engineer, Mellon-Stuart Co.; directors, Ralph Budd, president, Great Northern; Frank L. Nicholson, chief engineer, Norfolk Southern; George H. Norton, chief engineer, grade crossing and terminal station commission of Buffalo, N. Y.; Albert F. Reichmann, division engineer of the American Bridge Co.; Clyde T. Morris, professor of structural engineering, Ohio State University, and Joseph Jacobs, consulting engineer.

B & O History in Two Volumes

As a final act in its observance of its 100th year of continuous and successful existence, the Baltimore & Ohio has brought out a two-volume history of its operations. The volumes are profusely illustrated, with photographs, drawings and reproductions of early prints. There are four maps, showing the railroad in four states of its development. The work is published by G. P. Putnam's Sons, New York. Its author, Edward Hungerford, was associated with the direction of the Fair of the Iron Horse.

U. P. to Build to Boulder Canyon

Commissioner Mead of the bureau of reclamation at Washington announced January 29 that Chief Engineer Walter of the bureau and H. C. Mann, chief engineer of the Union Pacific, had located a route for a railroad to the Boulder dam site terminal to be four miles west of Las Vegas, Nev., on the main line of the Union Pacific and at the top of the canyon. The railroad will be 29 miles long and will run through the middle of a large gravel deposit found at the top of the canyon by the surveying party.

Commissioner Mead said the finding of gravel practically at the dam site was a highly pleasing feature of the survey and would greatly facilitate actual construction work.

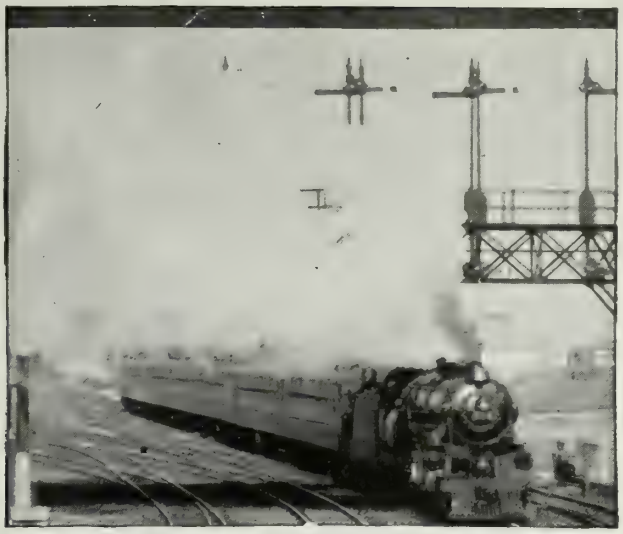
United Protest Against Fruit Rates

More than 400 railroads hauling California deciduous fruits have protested the cut in freight rates on these commodities in a case now before the Supreme Court of the United States.

The case is essentially a test of the Interstate Commerce Commission's interpretation of the Hoch-Smith resolution, under which the commission cut the rate on deciduous fruits from California, acting on the complaint of the California Growers' and Shippers' Protective League. The rates on these California products were blanket in territory east of Denver; that is, it cost no more to ship grapes to New York than it did to Chicago. The rates which the railroads consider fair were $1.73 per 100 pounds for the eastern blanket rate and $1.62 per 100 pounds for the western blanket rate. The commission cut these rates from $1.73 to $1.60 and from $1.62 to $1.50, although allowing the railroads to increase the minimum car load from 26,000 to 30,000 pounds.

Lackawanna Building Plans

A lake freight house to replace one destroyed by fire November 6 is to be built at Buffalo, by the Lackawanna Railroad. Contract has been awarded to the Terner Construction Co. of New York. The building will face the Lackawanna's passenger terminal on Main street and be leased by the railroad to the Detroit & Cleveland Navigation Co. for a freight and passenger terminal. It will be of concrete and steel with a water frontage of 834 feet. A concrete dock alongside of the



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P-82

freight house is included in the plans. Work will begin at once. The building is to be ready for occupancy about May 1. The Lackawanna will build also a pier, to be known as No. 10, at Hoboken-Jersey City, contract for which has been let to Foley Brothers, Inc., New York. It is to be 1,200 feet long, 40 feet wide and of low-water grillage and reinforced concrete. The grillage will be supported on fir piles up to 100 feet in length to be shipped from the Pacific Northwest. It will provide 1,200 feet of berthing space for ships, and will carry two tracks far enough apart to permit the use of a revolving crane to facilitate the handling of heavy and bulky freight between cars and boats.

New Railroad for Texas

More than $1,000,000 has been subscribed in the San Antonio and West Texas areas for a new railroad linking San Antonio with San Angelo and Corpus Christi on the Gulf of Mexico in connection with the Gulf, Texas & Western. Word has been received from the receiver of this road, W. Frank Knox of Dallas, that the directors of the road have authorized the extension of the line from Seymour, in Baylor County, southward through Cottle County.

Gets $9,000,000 Rail Orders

The Colorado Fuel & Iron Co. has received an order from the Southern Pacific for 236 gross tons of 130-pound rails and 7,087 tons of 100-pound rails. This order, with the recent order from the Rock Island for 10,700 tons of rails, brings the total steel rail orders placed with the company thus far this year to an aggregate of $9,000,000.

Fast Trains Soon to Mexico

Beginning Feb. 15 the Southern Pacific will have new and faster service between Los Angeles and Guadalajara with direct connections for Mexico City. Pullman trains with standard equipment and dining cars will be operated three days a week in both directions between Los Angeles and Guadalajara. In addition, local trains will be run three times a week between Nogales on the Arizona border and Guadalajara. All trains will make close connections with Pullman service to Mexico City.

Western Air Express Gets More Equipment

The Western Air Express, the home offices of which are in Los Angeles, has taken delivery on the fifth 12-passenger monoplane of an order of ten from the Fokker Aircraft Corpn. The company now has a fleet of eight of these huge tri-motored transport planes, in addition to other equipment. It is understood the new ship, which cost about $80,000, is to be placed in service on the Los Angeles-Salt Lake City air mail and passenger line, thus putting this division on a par, as regards super-equipment, with the Los Angeles-San Francisco run. These planes, the report shows, are to be standard equipment on all Western Air Express lines, excepting between Los Angeles and Catalina Island, on which amphibian sesqui-planes are operated. The five remaining planes the company is to receive will be used in part on the new line from Los Angeles to Kansas City which the Western Air Express will place in operation this spring or summer.

A Bridge Over the Mississippi

Permission to bridge the Mississippi River at a point just above the city of New Orleans is sought by the city in a petition filed with the Interstate Commerce Commission Jan. 15. The proposed structure will carry railway and highway traffic and will involve the construction of about ten miles of railroad track. It will be the only bridge across the river below Vicksburg on its way to the sea.

Gas Electric Tests by the S. P.

Tests are being made out of San Francisco by the Southern Pacific of a gas-electric car with a view to determining how and where it can be used to best advantage in public service. If the tests are successful, the Brill-Westinghouse car just received from the East will become the forerunner of other cars of this type to be operated by the company.

The car is manufactured by the J. G. Brill Co. at Philadelphia. It is equipped with electric generators and motors from the plant of the Westinghouse Electric & Mfg. Co. in East Pittsburgh, Pa. The motive equipment includes two gas engines developing a total of 600 horsepower. Each engine drives a large electric generator. The electric current is supplied to four traction motors, each rated at 150 horsepower, geared to the car axles. Specifications call for the car to be used as a unit or to haul two standard day coach trailers at a maximum speed of 60 miles an hour. The car is 73 feet long, weighs 151,280 pounds and has a seating capacity of 55. In appearance it conforms to the standard steel coach on Southern Pacific lines.

The company is testing out the car on its peninsula lines to supplement steam train service providing the gas-electric equipment demonstrates its capacity to stand up to the company's standard of service, safety and comfort.

Dynamometer Cars for the N. P.

A dynamometer car costing $105,000 and built in its own shops at St. Paul has just been put into service on the Northern Pacific, especially to record the history of new and very large locomotives used by that company. The car is so equipped with delicate instruments that it will record 22 aspects of locomotive operation. These include steam pressure, speed, air pressure and many other features. These in the aggregate comprise the pulling power of which a locomotive is capable.

The car is 70 feet long, weighs 168,600 pounds, and can measure drawbar pull up to 250,000 pounds and shock up to 1,250,000 pounds. At the head end of the car is a cupola in which are placed all the instruments and gauges necessary for locomotive testing. In the cupola is a chronograph table over the top of which there is always traveling, when the car is in motion, a continuous roll of paper 24 inches wide. On this paper a series of pens make a continuous record of 22 events, some of the most important being, drawbar pull, shock, speed, train line air pressure, steam pressure, distance marks, one minute marks, stations, and mile posts. The paper is driven through gearing from the car axle.

The car is modern throughout and has ample space for workroom, wash room, shower bath, sleeping sections, and dining room, and will be used on the entire system between Minneapolis-St. Paul and Spokane, Seattle, Tacoma and Portland.

Wood Preservers Elect Officers for 1929

In the 25th yearly convention of the American Wood Preservers' Association at Louisville, January 22-24, H. E. Horrocks, manager for the Pacific Creosoting Co., Seattle, was elected president. Other officers are C. C. Cook, maintenance engineer, Baltimore & Ohio, Baltimore, first vice president; J. S. Penney, vice president, T. J. Moss Tie Company, St. Louis, Mo., second vice president; H. L. Dawson, Chicago, secretary-treasurer, (re-elected). S. R. Church, consulting engineer, New York and W. J. Smith, tie and timber agent, Missouri-Kansas-Texas, Denison, Tex., were elected members of the executive committee for three years. Seattle was selected for the next convention.

Among the principal papers delivered, which will appear in later issues, were those by Grant B. Shipley, president, Century Wood Preserving Co., on the Trend of Wood Preservation, Tuesday afternoon, Jan. 22; and the Experience of the Illinois Central With Wood Preservation, by A. F. Blaess, chief engineer.

Committee reports included the following: By W. H. Fulweiler for Committee No. 4 on Preservatives; by C. H. Amadon for Committee No. 5-5-2, on Non-pressure Treatment of Poles; by J. R. McGrenera for Committees 5-2

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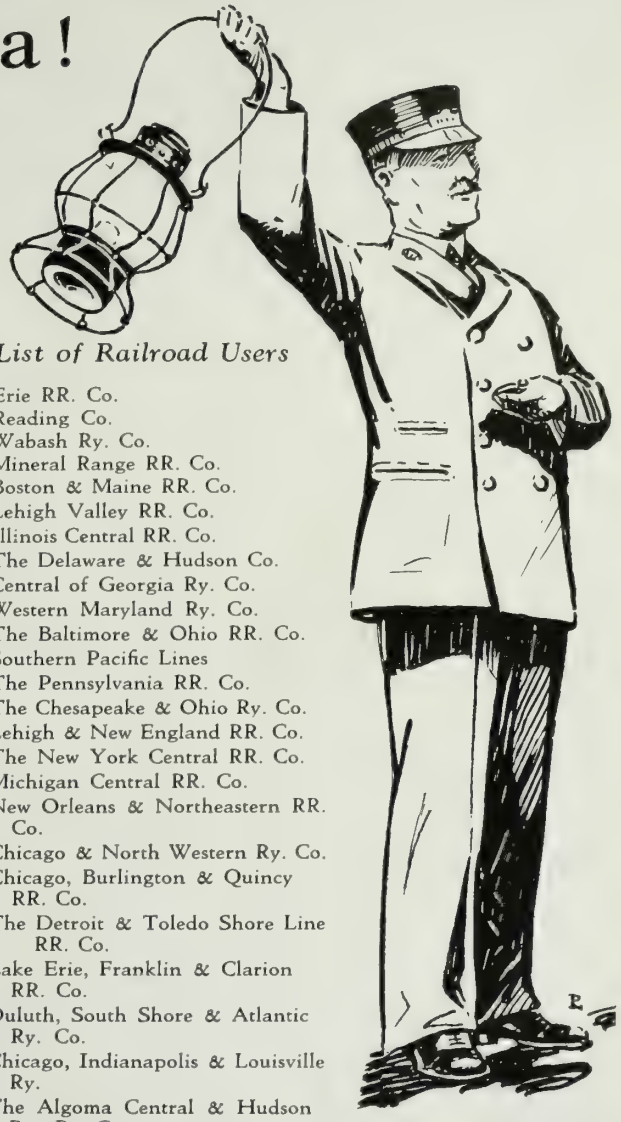

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STONHARD RESURFACER provides a resiliency that is enjoyed by foot traffic and makes trucking operations easier and safer. **STONHARD RESURFACER** is the ideal material for repairing or resurfacing Baggage Room floors, Station Platforms, Round Houses, in fact any place where concrete floor repairs are required.

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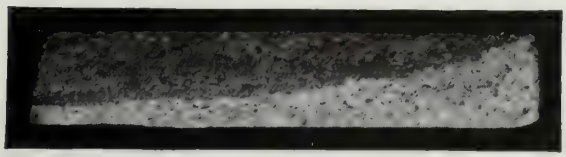
Wabash Ry. Co.
Mineral Range RR. Co.
Boston & Maine RR. Co.
Lehigh Valley RR. Co.
Illinois Central RR. Co.
The Delaware & Hudson Co.
Central of Georgia Ry. Co.
Western Maryland Ry. Co.
The Baltimore & Ohio RR. Co.
Southern Pacific Lines
The Pennsylvania RR. Co.
The Chesapeake & Ohio Ry. Co.
Lehigh & New England RR. Co.
The New York Central RR. Co.
Michigan Central RR. Co.
New Orleans & Northeastern RR. Co.
Chicago & North Western Ry. Co.
Chicago, Burlington & Quincy RR. Co.
The Detroit & Toledo Shore Line RR. Co.
Lake Erie, Franklin & Clarion RR. Co.
Duluth, South Shore & Atlantic Ry. Co.
Chicago, Indianapolis & Louisville Ry.
The Algoma Central & Hudson Bay Ry. Co.
The New York, New Haven & Hartford RR. Co.
The Delaware, Lackawanna & Western RR. Co.
Richmond, Fredericksburg & Potomac RR. Co.
Chicago, Milwaukee, St. Paul & Pacific Ry. Co.
The Minneapolis, St. Paul & Sault Ste. Marie Ry. Co.

Send for your free copy of "Over The Rough Spots." It is an education in floor maintenance.



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STONHARD COMPANY

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Philadelphia

Specialists in Concrete Floor Maintenance

Detroit Cleveland San Francisco

and 5-6-1 on Lumber and Posts; by D. R. Elmore, for Committee 5-2-1 on Treatment of Car Lumber; by R. H. Rawson, for Committee 5-2-2, on Treatment of Douglas Fir Lumber; by W. R. Goodwin, for Committee 7-1, on Tie Service Records; by A. R. Joyce, A. W. P. A. Representation National Committee on Wood Utilization; by C. G. Crawford, Committee 6-2, on Purchase and Preservation of Treatable Timber; by F. E. McGrory, Committee 7-9 on Posts; by R. M. Wirka, Committee 8-3 on Moisture Content Determination. About 250 members were present.

Northern Pacific Budget

The Northern Pacific Railway, through the executive offices in St. Paul, announced Feb. 10 a $46,500,000 program of expenditures in 1929 for roadway, building and equipment maintenance, roadway and building improvements, and new equipment. The program indicates large expenditures at many points between St. Paul-Minneapolis and Duluth on the east and the Seattle-Tacoma-Portland on the west. These include:

Roadway and building maintenance	$14,000,000
Equipment maintenance	15,000,000
Roadway and building improvements	10,000,000
New equipment	6,000,000
Work carried over from 1928	1,500,000
Total	$46,500,000

About 230 miles of ballast will be placed in 1929, of which 125 miles will be of washed ballast. By the close of 1929 a total of 1,020 miles of washed ballast will have been applied.

The Northern Pacific has been carrying on a program of relaying its steel rails, substituting for the lighter rail the heavier 100 and 130-pound material. The plan is to lay about 125 miles of the heavier rail in 1929 at a cost of $2,700,000. By the end of 1929 the total new rail laid within the last six years will be 976 miles. Plans call also for an outlay of $200,000 for 70 miles of rail welding in sections scattered all over the system. This is a process of welding the joints to make the track smoother and the trains ride more quietly. Bridge building outlined will cost $3,000,000; improvements to telephone and telegraph lines $300,000; betterments to freight and passenger buildings $300,000; improvements to equipment $1,500,000; $100,000 for improvement of water supply; and $60,000 for improved electrical highway crossing signal protection at various points along the system.

Daily Movement Shows Fine Increase

The railroads moved freight traffic in 1928 with the greatest promptness ever attained, the bureau of railway economics says in a report issued February 12. Daily average movement of freight cars was 31.3 miles, an increase of one mile over 1927, and an increase of nine-tenths of a mile over the daily average for 1926. The highest daily average for any one month on record was in October, 1928, when an average of 36.2 miles was attained. This exceeded by 1.5 miles the best previous average, which was in October, 1927.

The average load per freight car in 1928, including less than carload lot freight as well as carload freight, was 26.7 tons. This was a decrease of five-tenths of one ton under the average for 1927 and a decrease of seven-tenths of a ton below the average for 1926.

Traffic Volume Up in 1928

The volume of freight traffic handled by the Class I railroads in 1928 amounted to 476,994,254,000 net ton miles, the bureau of railway economics reports. This was an increase of 2,304,139,000 net ton miles or five-tenths of one per cent above 1927 but a decrease of 11,707,570,000 net ton miles or 2.4 per cent below 1926.

In the eastern district, there was a decrease of 1.4 per cent in the amount of freight traffic handled in 1928 compared with 1927 while the southern district showed a decrease of 5.4 per cent. The western district, however, reported an increase of 5.4 per cent.

In December, freight traffic handled by the Class I railroads amounted to 37,644,730,000 net ton miles, an increase of 3,052,807,000 net ton miles or 8.8 per cent above the same month in 1927. In the eastern district, the volume of freight handled by the railroads in December showed an increase of 12.2 per cent, while the southern district reported an increase of five per cent. The western district reported an increase of 5.8 per cent.

Railway Construction

Tracks and Yards

ARKANSAS.—The Missouri Pacific has let a contract to A. Guthrie & Co., St. Paul, for 15 miles of second main track south of Newport.

CALIFORNIA.—The Southern Pacific has asked permission to construct a branch line from Knights Landing to a point near Boyer's Landing, 14 miles.

KANSAS.—The Santa Fe has let a contract to the List & Bagwell Construction Co., Kansas City, for three miles of new main line which will reduce grades and eliminate several street grade crossings.

MISSOURI.—The St. Louis Electric Terminal and its lessee the Illinois Terminal has permission to construct a 2.6-mile extension from the west end of McKinley bridge, St. Louis. The estimated cost, including a new station and office building, is $4,972,950.

NEW MEXICO.—The South Plains & Santa Fe has applied for authority to construct a 20.5-mile branch line from a point near the Texas-New Mexico state line to Lovington, N. M.

NEW YORK.—The Long Island has asked permission to abandon 4.1 miles of its Whitestone branch from the west bank of the Flushing river to Whitestone Landing, N. Y.

PENNSYLVANIA.—The Baltimore & Ohio has awarded a contract to the Vang Construction Co., Cumberland, for four bridges on its line south of Pittsburgh, to cost about $40,000.

TEXAS.—The Rock Island has asked permission to construct a 97-mile line from Groom to Paducah to join with the Gulf, Texas & Western and reduce the distance between Amarillo and Ft. Worth.

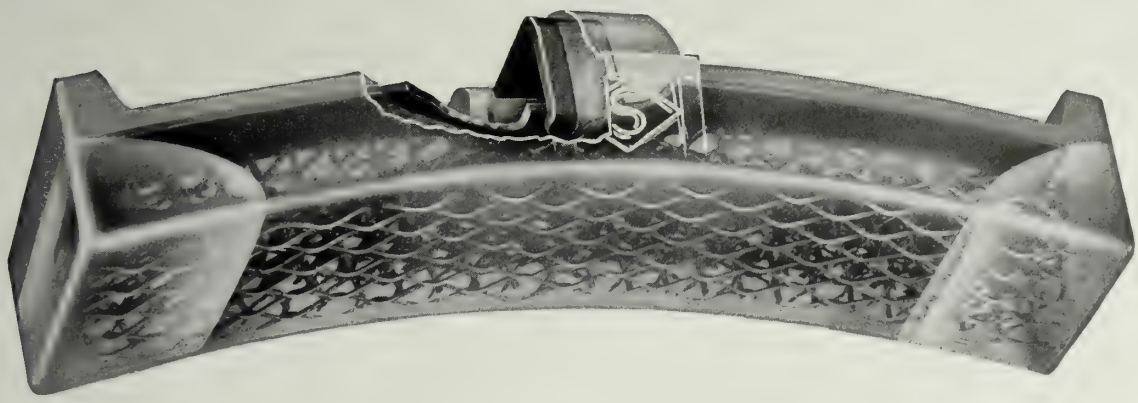
—The Frisco has applied for permission to acquire the Gulf Texas & Western and construct two extensions totaling 113 miles. The Gulf Texas & Western runs from Seymour south to Salesville and is 98.46 miles long. The first extension proposed is from Vernon south 42 miles to Seymour and the second is from Seymour north 71 miles to Paducah where it will connect with the Quanah, Acme & Pacific, a subsidiary of the Frisco.

WYOMING.—The Burlington has permission to abandon a 6.9-mile branch line from Newcastle to Cambria.

Buildings and Structures

MISSOURI.—Poplar Bluff. It is reported that the Missouri Pacific is planning a five stall addition to the roundhouse here which, with other improvements will cost about $100,000.

NEW JERSEY. — Jersey City. The



5
Sound Reasons

Why Diamond "S" Brake Shoes Pattern C-50 Should be Used on Freight Cars

1—You can entirely eliminate one pattern—the C-40.

2—You can make a 40% reduction in the number of freight car brake shoes to be purchased, distributed, applied and removed.

3—You can save 31% in the tonnage of freight car brake shoes to be purchased.

4—You can make a saving of 8¾% in your annual bill for freight car brake shoes.

5—You can materially reduce the labor needed for application of new brake shoes and in handling scrap brake shoes.

Any one of these 5 reasons is enough

At your request and without obligation to you, we shall be glad to show you just how definite these facts really are.

THE AMERICAN BRAKE SHOE AND FOUNDRY COMPANY

30 CHURCH ST., NEW YORK
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Lackawanna has let a contract to Foley Brothers, Inc., for a new pier at the terminal here.

NEW YORK.—Black Rock. The New York Central is planning to construct a new freight and switching yard with a capacity of 2,000 freight cars here, and expects to commence construction early in the spring. The entire project is expected to cost about $1,000,000.

—Buffalo. The Turner Construction Co. of this city has a contract from the Lackawanna for rebuilding its docks and lake freight house here.

PENNSYLVANIA.—Greenville. The Bessemer & Lake Erie will build a 48-foot, re-inforced concrete extension to its store house here, to cost about $35,000.

Lewistown. The Ogle Construction Co., Chicago has a contract from the Pennsylvania for a 50-ton two-track electric steel coaling station and a single track ash handling plant here.

Phillipston. The Pennsylvania has let a contract for a single-track automatic direct coaler and a single-track ash handling plant, to the Ogle Construction Co., Chicago.

—South Philadelphia. The Ogle Construction Co., Chicago, has a contract from the Pennsylvania for a 500-ton, four-track reinforced concrete electric coaling station and sand handling plant and a reinforced concrete ash pit.

Locomotive Orders

According to reports filed with the A.R.A., locomotives in need of repair on the Class I railroads on January 15 totaled 8,992 or 15.4 per cent of the number on line, 8.2 per cent in need of classified repairs and 7.2 per cent in need of running repairs. This was an increase of 1,061 compared with the number in need of repair on January 1, at which time there were 7,931 or 13.6 per cent. Serviceable locomotives in storage January 15 totaled 6,045 compared with 6,482 on January 1.

The Southern Pacific is inquiring for 16 Mallet type locomotives; Milwaukee, 14 4-6-4 type and one 4-8-4 type locomotives; American Rolling Mill Co., two oil electric locomotives for switching service; Weirton Steel Co., one 0-4-0 type locomotive. The Pere Marquette, it is reported, will buy ten switchers and five Mikados.

American received orders, through the Montreal Locomotive Works, from the Canadian Pacific for 20 2-10-4 oil locomotives. Baldwin received orders from the Chesapeake & Ohio for 15 0-8-0 switching locomotives; Chicago & North Western, 10 4-8-4 type; International Railways of Central America, two Mikados; Kwang Tung Yueh Han, Canton, China, two 4-8-2 type; Pickands, Mather & Co., two switchers; Boston and Maine, five switchers; Weyerhaeuser Timber Co., three 2-6-6-2 type and one 2-8-8-2 type. Lima received orders from Illinois Central for 17 switchers and the Island Creek Coal Co., for one 2-8-0 type. The Illinois Terminal Railroad System is building five Class 0 locomotives and four Class C locomotives in its own shops.

Passenger Car Orders

Orders placed since the January issue of Transportation include the following: Santa Fe, 10 mail and baggage cars, 10 chair smoking cars, 10 chair cars, 10 partition coaches, 14 baggage cars from Pullman Car & Mfg. Corpn., and 21 gas-electric rail motor cars from Pullman Car & Mfg. Corpn. and Electro-Motive Co.; Boston & Maine, 10 mail and baggage cars from Osgood Bradley Car Co.; Chicago & North Western, 10 all-steel baggage cars from American Car & Fdy. Co.; Rock Island, five dining cars and two parlor cars from Pullman Car & Mfg. Corpn., five baggage cars from American Car & Fdy. Co., 15 suburban cars from Standard Steel Car Co.; Louisville & Nashville, four coaches, four coaches with end smoking compartments and four combination passenger and baggage cars from American Car & Fdy. Co., six baggage cars from Pressed Steel Car Co.; New York Central, one steam motor car from Railway Locomotor Co.; Union Pacific, 25 baggage cars from Standard Steel Car Co., 25 coaches with smoking rooms from American Car & Fdy. Co., five combination horse and baggage cars from Bethlehem Steel Co., five dining cars from Pullman Car & Mfg. Corpn.; Canadian National, seven car bodies for oil-electric rail motor cars (power plants to be installed in company shops) from Canadian Car & Fdy. Co.; Lehigh Valley, two gas-electric rail motor cars with Electro-Motive units and five trailer cars from Osgood Bradley Car Co.; St. Louis-Southwestern, two passenger and baggage rail motor cars from J. G. Brill Co.

The Canadian National is inquiring for 15 express refrigerator cars; Chesapeake & Ohio, 15 express cars (12 for C. & O. and three for Hocking Valley); Chicago & North Western, it is said, will soon enter the market for 25 horse cars, 24 suburban coaches, four combination baggage and smoking cars, one cafe car and five combination passenger and baggage cars; Delaware & Hudson, three combination baggage and mail cars; Northern Pacific, seven gas-electric rail motor cars; Southern Pacific, ten lounge cars and three observation cars. It is reported that the Milwaukee will issue an inquiry for ten passenger cars, and that the Long Island will buy 40 multiple unit motor cars in the near future. The New Haven will build 20 multiple unit cars in the company shops.

Freight Car Orders

Class I railroads on January 23 had 323,125 surplus freight cars in good repair. This was a decrease of 52,855 cars compared with January 15, at which time there were 375,980 cars.

Surplus coal cars on January 23 totaled 112,392, a decrease of 27,694 cars within approximately a week, while surplus box cars totaled 162,012, a decrease of 24,793 cars for the same period. Reports also showed 24,107 surplus stock cars, a decrease of 69 under the number reported January 15, while surplus refrigerator cars totaled 11,948, an increase of 209 for the same period.

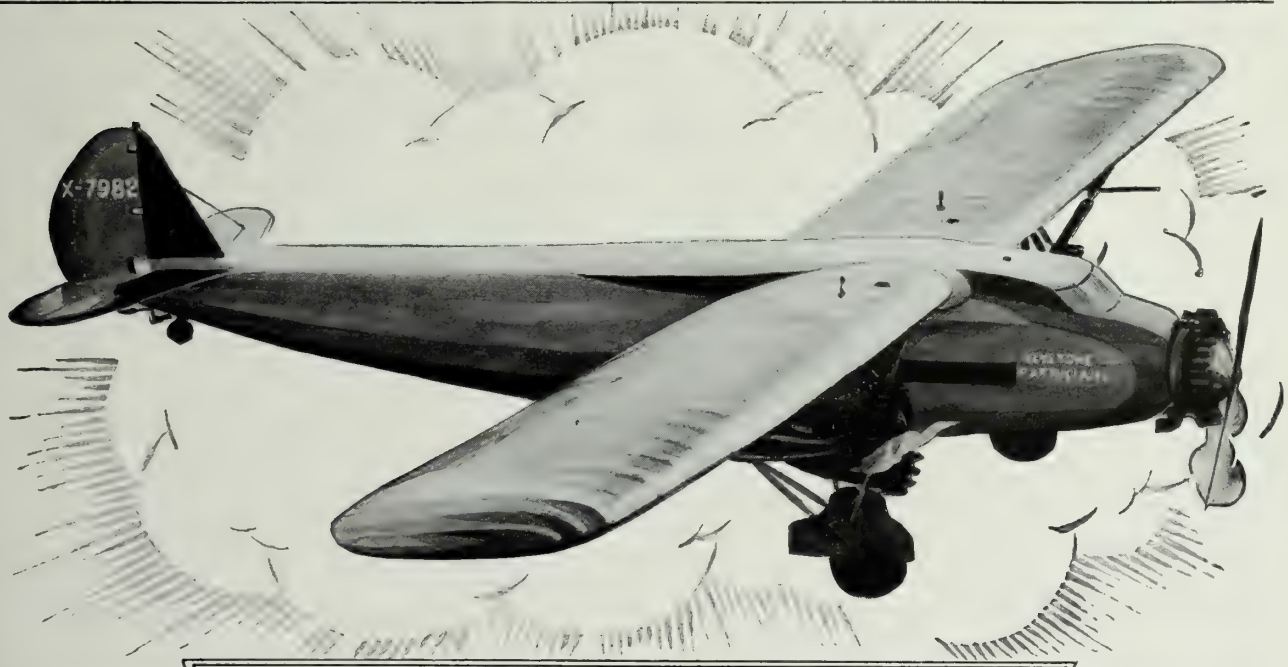
The Milwaukee is inquiring for 1700 automobile cars, 1000 ballast cars, 300 ore cars, 500 single deck stock cars, 150 double deck stock cars, 500 flat cars, and is expected to issue an inquiry for 15 caboose cars shortly; the Chesapeake & Ohio, 2000 gondola cars and 500 box cars; American Smelting & Refining Co., 25 gondolas; Chile Exploration Co., 80 ore cars; General Electric Co., two flat cars; Hocking Valley, 107 flat cars; Illinois Central, 25 cabooses; Litchfield & Western, 100 drop bottom gondolas and 100 solid bottom gondolas; Northern Pacific, 500 gondolas; Pere Marquette, 100 ballast cars; Texas & Pacific, 500 stock cars, 700 box cars and 300 automobile cars; Wheeling & Lake Erie, 100 flat cars; Lake Champlain & Moriah, 20 ore car bodies; Western Union, five steel underframes for box cars. The Norfolk & Western is calling for bids for the rebuilding of 1000 all steel hopper cars.

The Santa Fe ordered 500 single deck stock cars and 250 double deck stock cars from Pennsylvania Car Co., 150 sulphur cars and 75 hopper cars from American Car & Foundry Co., 75 hopper cars from Ralston Steel Car Co., and 25 Ingoldsby dump cars from Koppel Industrial Car & Equipment Co.; Canadian Pacific, 500 steel box cars from Eastern Car Co., 2300 steel box cars and six ore cars from National Steel Car Co., 2200 steel box cars and 50 Hart ballast cars from Canadian Car & Fdy. Co., five depressed center flat cars from its Angus shops; Chesapeake & Ohio, 125 cabooses from the Hocking Valley shops; Chicago & North Western, 500 automobile cars from General American Car Co., 500 automobile cars and 500 gondolas from Pullman Car

Sets a new pace in Transportation!

Speed—151 Miles per hour
Capacity—3880 lbs. payload

SPEED SAFETY COMFORT



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The PATRICIAN, Keystone's great tri-motored Transcontinental Air Liner, is flying the airways of the country on a tour of demonstration from the Atlantic to the Pacific and return. Stops are being made at numerous airports along the way. Courtesy flights are being given to transportation executives, city and state officials, business men and others so that all may witness the unmatched performance of this great 20-passenger monoplane transport.

Transportation officials are invited to watch the newspapers for the arrival of the PATRICIAN . . . to see and to fly in the largest, safest, swiftest, overland transport — the master product of the Keystone Aircraft Corporation, leading producers of multi-engined planes.

The PATRICIAN will be installed in regular operation on several important transport lines this summer. A production schedule is now under way. Follow the tour of the PATRICIAN!

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Sales Dept., 31st St. and East River, New York
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KEYSTONE

"THE KEYSTONE OF SAFE FLYING"

& Mfg. Corpn., 500 gondolas from Standard Steel Car Co.; Rock Island, 1000 composite coal cars from Pressed Steel Car Co., 1000 box cars from American Car & Fdy. Co., 250 flat cars from Ryan Car Co., 250 ballast cars from Standard Steel Car Co.; Elgin, Joliet & Eastern, 125 gondolas from Pressed Steel Car Co., 125 gondolas from American Car & Fdy. Co., 75 flat car bodies from own shops; Illinois Central, 300 automobile cars from Mt. Vernon Car Mfg. Co., 700 automobile cars from American Car & Fdy. Co., 750 hoppers from Pullman Car & Mfg. Corpn., 425 hoppers from Standard Steel Car Co., 325 hoppers from General American Tank Car Corpn., 200 flat cars from Bettendorf Co.; Illinois Central, for Chicago & Illinois Western, 100 hoppers from General American Tank Car Corpn., 100 gondolas from Ryan Car Co.; Lehigh Valley, 300 automobile cars from American Car & Fdy. Co.; Missouri Pacific, 1000 box cars from American Car & Fdy. Co., 500 hopper cars from Standard Steel Car Co., 500 stock cars from General American Car Co.; North American Car Co., 500 tank cars from Pressed Steel Car Co.; Pere Marquette, 1000 box cars from Pressed Steel Car Co., 400 gondolas from Magor Car Corpn.; Texas Company, 300 tank cars from Petroleum Iron Works, 375 tank cars from American Car & Fdy. Co.; Tidewater Oil Co., 118 tank cars from American Car & Fdy. Co.; Utah Copper Co., 100 ore cars from Pressed Steel Car Co., 22 air dump cars from Koppel Industrial Car & Equipment Co.; Western Pacific, 250 automobile cars from Pullman Car & Mfg. Corpn., 50 tank cars from General American Tank Car Corpn., 50 flat cars from Pacific Car & Fdy. Co.; Wheeling & Lake Erie, 1000 gondolas from Standard Steel Car Co.; Erie, five depressed center flat cars from Standard Steel Car Co.; Fisher Lumber Corpn., Memphis, 20 skeleton logging cars from Koppel Industrial Car & Equipment Co.; Goodwin-Gallagher Sand & Gravel Corpn., six hopper cars from Magor Car Corpn.; International Railways of Central America, 25 stock cars from Gregg Co.; Michigan Limestone & Chemical Co., 10 air dump cars from Koppel Industrial Car & Equipment Co.; Pickands, Mather & Co., 30 air dump cars from Western Wheeled Scraper Co.; Pittsburgh Steel Co., four air dump cars from Koppel Industrial Car & Equipment Co.; Reading Company, five air dump cars from Koppel Industrial Car & Equipment Co.; Timken Roller Bearing Co., one air dump car from Koppel Industrial Car & Equipment Co.; Westinghouse Electric & Mfg. Co., one steel substation car from American Car & Fdy. Co.; Seaboard Air Line, 500 box car bodies from Richmond Car Works; Western Fruit Express, 800 steel underframes from Siems-Stembel Co.; Western Maryland, repairs to 800 cars in its own shops. The New Haven, it is reported, will build 1,591 box cars, 95 cabooses, 25 flanged cars and 25 milk cars in the company shops.

Bus and Truck Orders

Recent orders and deliveries include the following: Albany Transit Co., two 29-passenger Mack city type buses; Atlantic City & Shore Line Ry., four type X 21-passenger Yellow coaches; Capital Traction Co., four Yellow coaches; Chicago, South Bend & Northern Indiana, three 21-passenger Studebaker street car type buses; Community Traction Co., six type Z 29-passenger city service Yellow coaches and 14 type Z 33-passenger Yellow coaches; Connecticut Co., six Mack buses and two 24-passenger Yellow coaches; Denver Tramway Corpn., two 25-passenger Mack buses; Detroit Street Railways, three Twin Coach urban coaches; Houston Electric Co., one Twin Coach urban coach; Jacksonville Traction Co., four Twin Coach urban coaches; Key System Transit Co., ten Twin Coach urban coaches; Louisville Street Ry., two 21-passenger Studebaker street car type buses; North Coast Transportation Co., one Twin Coach suburban express coach; Northern Ohio Power & Light Co., six Twin Coach urban coaches; Pacific Electric Co., one 19-passenger Fageol special parlor car bus and one 19-passenger Fageol parlor car; South Texas Coaches, Inc., two 21-passenger Mack parlor car coaches equipped with Lang bodies; Southern Pacific Motor Transport Co., two type W 17-passenger General Motors parlor coaches; Tennessee Coach Co., three type Y yellow parlor coaches; Transit Supply Co., St. Paul, four Mack buses with Eckland bodies; United Electric Railways Co., nine Twin Coach suburban express coaches; Virginia Electric & Power Co., five Twin Coach coaches.

Changes in Personnel

Executive and Operating

J. R. Hitchcock, acting general manager of the western lines of the Santa Fe, has been appointed general manager. **F. J. Mackie,** acting assistant general manager, has been appointed assistant general manager.

M. E. Madden, superintendent of the Danville division of the Southern, with headquarters at Greensboro, N. C., has been appointed general superintendent of the Alabama district with headquarters at Birmingham, to succeed **H. H. Vance,** deceased. Other appointments were: **H. A. DeButts,** superintendent, Danville division, headquarters Greensboro, N. C., vice Mr. Madden. **S. S. Brooks,** superintendent, Washington division, headquarters Alexandria, Va., vice Mr. DeButts. **W. F. Cooper,** superintendent, Asheville division, headquarters Asheville, N. C., vice Mr. Brooks. **F. M. Hair,** superintendent, Columbia division, headquarters Columbia, S. C., vice Mr. Cooper. **J. T. Moon,** superintendent, Charleston division, headquarters Charleston, S. C., vice Mr. Hair. **Clark Hungerford,** superintendent of the Georgia Southern & Florida, headquarters Macon, Ga., vice Mr. Moon. **G. W. Adams,** superintendent, Mobile division, headquarters Selma, Ala., vice Mr. Hungerford.

After 55 years' service with the B. & O., **C. W. Woolford,** secretary of the company for 32 years, resigned, effective February 1, because of impaired sight. **George F. May,** assistant secretary since 1902, was appointed to succeed Mr. Woolford. Mr. May was born in Brooklyn, N. Y., July 22, 1871, and was educated in the public schools there. He entered Baltimore & Ohio service on the southwestern lines as clerk January 5, 1892. **M. F. Steinberger,** special engineer in the office of the operating vice president, was appointed manager highway transportation, with headquarters at Baltimore. He entered the service of the B. & O. in 1905 as axeman in the engineering department.

The Southern Pacific announces that **V. S. Andrus,** and **A. J. Hancock,** assistants to general manager, have been appointed assistants to vice president, with headquarters at San Francisco.

W. T. Ennis has been appointed superintendent of the Pocatello, Idaho, terminal of the Union Pacific, in charge of passenger and freight.

Edward G. Buckland has been elected chairman of the board of directors of the New Haven. He will have the authority to perform the duties of president until a president is appointed.

Hockey . . . The Boston "Garden" ...*and the* NEW NORTH STATION

The First Hockey Game in the Boston "Garden" of the New North Station, Boston

ONE of the features of the New North Station in Boston, which we built for the Boston and Maine Railroad, is the large coliseum occupying all the upper space in the structure. This great hall—operated by the Boston Madison Square Garden, Inc.—seats 18,000 people, can be frozen for public skating in four hours, and will be headquarters for athletic events of all kinds, games, circuses, public meetings and concerts.

The "Garden" illustrates the present-day trend toward making large terminals self-supporting. With the rentals from the various concessions, including the "Garden", which the New North Station contains, the actual terminal facilities are designed to be self-supporting.

Our service — representing over 40 years experience in railroad work—is available for construction (with or without design) of passenger and locomotive terminals, shops, power stations, electrification, freight houses or any other type of work.

UNITED ENGINEERS & CONSTRUCTORS, INC.
Dwight P. Robinson, Pres.

combining

The U. G. I. Contracting Co.
Public Service Production Co.
Dwight P. Robinson & Co., Inc.
Day & Zimmermann Engineering & Construction Co.

Inquiries are invited without obligation

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INCORPORATED
DWIGHT P. ROBINSON, PRESIDENT

NEW YORK PHILADELPHIA NEWARK CHICAGO

ATLANTA LOS ANGELES BUENOS AIRES MONTREAL RIO DE JANEIRO

R. L. Longshore, division engineer on the Wabash with headquarters at Montpelier, O., has been appointed general manager of the Toledo & Western, with headquarters at Toledo, to succeed **H. O. Kelley,** appointed superintendent of the Springfield division of the Wabash with headquarters at Springfield, Ill.

N. A. Meyer, assistant superintendent of transportation, western lines of the Milwaukee, has been appointed superintendent of transportation with headquarters as before at Seattle. **Harry P. Congdon,** assistant superintendent, western division with headquarters at St. James, Minn., has been appointed assistant to the general manager with headquarters at St. Paul. Mr. Congdon succeeds **Thomas W. Kennedy,** retired.

The Pullman Company announces that **Hugh P. Walden,** assistant to the vice president and general manager, with headquarters at Chicago, has retired after 46 years' service.

A. P. Titus, vice president and general manager of the Chicago & Alton, with headquarters at Chicago, has been appointed vice president in charge of operation of the Illinois Terminal Railroad. Mr. Titus will have charge of both the steam and electrified lines, with headquarters at St. Louis.

Arthur P. Russell, vice president of the New Haven in charge of public relations, valuation and insurance, real estate and industrial development, has been elected executive vice president.

H. M. Adams, president of the Western Pacific, with headquarters at San Francisco, also has been elected president of the Sacramento Northern, which has acquired the San Francisco-Sacramento. Mr. Adams succeeds **G. F. Detrick. Charles Elsey,** vice president and treasurer of the Sacramento Northern and treasurer of the San Francisco-Sacramento, and **H. A. Mitchell,** vice president, general manager and purchasing agent of the San Francisco-Sacramento, have been elected vice presidents of the Sacramento-Northern. **E. E. Bates,** treasurer of the Western Pacific, also has been elected treasurer of the Sacramento Northern. **F. A. Ewerger** has been named auditor.

H. H. Hampton has been elected vice president of the New York, Chicago & St. Louis, with headquarters at Cleveland.

R. C. Miller, superintendent of the Toledo division of the Pennsylvania, has been appointed superintendent of the Columbus division to succeed **J. C. Rill,** promoted. **C. F. Lingenfelter,** assistant superintendent of the New York division, has been appointed superintendent of the Toledo division to succeed Mr. Miller.

Stroad P. Henderson, general superintendent of the Chicago & Alton, with headquarters at Bloomington, Ill., has been appointed chief operating officer with headquarters at Chicago to succeed **A. P. Titus,** resigned. **Clarence W. Bearden,** superintendent of transportation, has been promoted to general superintendent to succeed Mr. Henderson.

W. A. Fitch, division superintendent of the Canadian National, with headquarters at Campbellton, N. B., retired December 27.

William Wright Baldwin, vice president in charge of the tax department of the Burlington, with headquarters at Chicago, retired January 1, after nearly 50 years' service with that company.

T. M. Jones

T. M. Jones, chief clerk of the Baltimore & Ohio, has been appointed assistant to the vice president. Mr. Jones has been with the road for 28 years, having started as a yard clerk when he was 15. During the federal control of the railroads he was made chief clerk to the assistant federal manager and later, chief clerk to the federal manager. When the roads were returned to private management the federal manager became vice president and Mr. Jones retained his position as chief clerk to the vice president, in which capacity he remained until his present promotion.

Financial & Legal

George F. May, assistant secretary of the Baltimore & Ohio, with headquarters at Baltimore, has been appointed secretary, succeeding **C. W. Woolford,** resigned.

Charles L. Lowe, auditor of expenditures of the Chicago & Northwestern, with headquarters at Chicago, retired February 1 after 57 years of service. The office of auditor of expenditures has been abolished. **F. L. Doody,** auditor of freight accounts of the Omaha, with headquarters at St. Paul, has been appointed auditor of passengers accounts of the Northwestern.

F. A. Hogberg, assistant land and tax commissioner of the Illinois Central, has been appointed land and tax commissioner, with headquarters at Chicago.

W. E. Davis, acting auditor of disbursements of the eastern and western lines of the Santa Fe, has been appointed auditor of disbursements, with headquarters at Topeka.

H. L. Stuntz, assistant to the receivers of the Chicago & Alton, has been appointed comptroller, with headquarters at Chicago, succeeding **E. S. Benson,** deceased.

The Duluth, Missabe & Northern has appointed **D. F. Donovan** general attorney with headquarters at Duluth, Minn.

J. S. Moore, Jr., general attorney of the Western Pacific, with headquarters at San Francisco, has resigned.

R. H. M. Temple, assistant general counsel of the Canadian National, with headquarters at Montreal, has been appointed general counsel, with the same headquarters, to succeed **W. C. Chisholm,** deceased.

Thomas Balmer, assistant general counsel of the Great Northern, with headquarters at St. Paul, has been appointed western counsel, with headquarters at Seattle. **James H. Mulally, James P. Plunkett** and **Fletcher Rockwood** have been appointed general attorneys at St. Paul.

W. C. Hussey, general claim agent of the Los Angeles & Salt Lake, with headquarters at Los Angeles, retired from active service December 31 after 47 years' service.

C. G. Austin, Jr., vice president and general counsel of the Chicago & Western Indiana and the Belt Railway of Chicago, has resigned. **J. Raymond Barse,** acting general counsel, has been elected general counsel.

Purchases and Stores

Robert H. Adams, assistant purchasing agent of the Los Angeles & Salt Lake, has been appointed purchasing agent, with headquarters at Los Angeles, to succeed **N. H. Foster,** deceased.

David E. Reynolds has been appointed purchasing agent of the Bessemer & Lake Erie and the Union Railroad with headquarters at Pittsburgh.

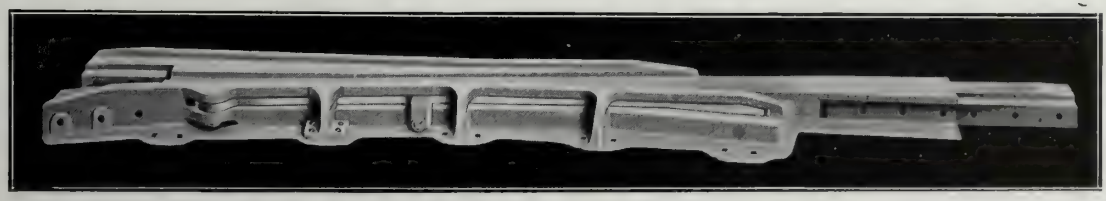
Charles R. Peddle, assistant purchasing agent of the Pennsylvania, with headquarters at St. Louis, retired January 1 after more than 50 years of railway service.

Jesse B. Noyes, division storekeeper

CONLEY
Self Guarded
FROGS

A Recent Installation of CONLEY RIGID FROGS at Ft. Worth, Texas.

CONLEY
SOLID MANGANESE SPRING FROGS
Have Proved Their Merit
FOR SAFETY AND ECONOMY IN MAIN LINE SERVICE



Let Us Tell You About Them

CONLEY FROG & SWITCH CO.
MEMPHIS, TENNESSEE

on the Soo Line, with headquarters at Minneapolis, has been appointed general storekeeper of that road and the Duluth, South Shore & Atlantic and the Mineral Range, with headquarters as before.

Traffic

W. McN. Napp, general freight agent in charge of solicitation of the Central of Georgia, has been appointed assistant freight traffic manager, with headquarters at Savannah, a newly created position.

The Boston & Maine announces that **John W. Rimmer,** general assistant to the vice president, and **James R. MacAnanny** and **Patrick J. Mullaney,** general freight agents, have been appointed assistant freight traffic managers.

George H. Clark, assistant to the traffic manager of the New York Central, with headquarters at New York, has been named general freight agent in charge of solicitation.

William H. Abel, general passenger agent of the Chicago & Alton, has been appointed passenger traffic manager with headquarters at Chicago, to succeed **G. J. Charlton,** deceased.

A. L. Miller has been appointed assistant general passenger agent of the New York Central with headquarters at New York.

Robert A. Williamson, acting general freight agent of the New York, Chicago & St. Louis, has been appointed general freight agent with headquarters at Cleveland.

John E. Wagner, district passenger agent of the Norfolk & Western, with headquarters at Richmond, has been appointed general agent with headquarters at Chattanooga to succeed **W. L. Rohr,** retired.

The St. Louis Southwestern announces that these commercial agents have been appointed general agents: **T. A. McDonough,** Atlanta; **G. L. Leitner,** Detroit; **C. E. Scott,** Pittsburgh; **J. T. Ferguson,** Shreveport; **E. A. Senneff,** San Francisco; **F. E. Rownd,** Kansas City; **E. P. Becker,** Cleveland; **F. W. Christopher,** Chicago; **R. W. Byrne,** Cincinnati, and **S. C. Yeaman,** New Orleans.

F. C. Foley has been appointed assistant general agent in the freight department of the Wabash at New York.

P. A. Frye, general agent, Mississippi Central, at Shreveport, has been appointed assistant general freight agent. The position of general agent has been abolished.

Earl W. Ireland, general agent of the passenger department of the Chicago Great Western, has been appointed assistant general passenger agent at Kansas City to succeed **H. E. Bulla,** resigned. **Thomas G. Kees,** district passenger agent at Chicago, has been named to succeed Mr. Ireland.

Bode K. Smith, passenger traffic manager, and **H. K. Faye,** freight traffic manager of the Western Pacific, have taken over the supervision of the passenger traffic and freight traffic departments following the resignation of **Eugene Fox,** vice president in charge of traffic, which office has been abolished.

The Southern announces that **J. L. Meek,** assistant general passenger agent at Chattanooga, has been transferred in the same capacity to Knoxville and will be succeeded by **James Freeman,** division passenger agent at Birmingham. **C. B. Rhodes,** division passenger agent at Macon, has been appointed assistant general passenger agent at Birmingham. **W. E. McGee,** division passenger agent at Columbia, S. C., has been promoted to assistant general passenger agent there. **W. C. Spencer,** district passenger agent at Philadelphia, has been appointed division passenger agent at New Orleans. **C. D. Whitworth** has been appointed district passenger agent at Chattanooga and **G. R. Pettit** has been named district passenger agent at Macon.

J. T. Kingsley, general agent for the Chicago, Springfield & St. Louis and the Jacksonville & Havana with headquarters at Pittsburgh, has been appointed assistant general freight agent there. **W. J. Mitchell** has been appointed general agent for the roads at Chicago.

Mechanical

The Union Pacific announces that **Arthur H. Fetters,** mechanical engineer, has been appointed general mechanical engineer of the system, with headquarters as before at Omaha. **James H. Connor,** special representative of the superintendent of motive power and machinery of the Union Pacific unit, has been appointed special representative of the general superintendent of motive power and machinery of the system, with headquarters at Omaha. **C. W. Smith,** inspector of shop standards; **A. J. Harner,** lubrication engineer; **M. C. Haver,** engineer of road tests, and **J. K. Peters,** assistant to the mechanical engineer of the Union Pacific unit, have been appointed to corresponding positions on the system, with headquarters at Omaha.

Howard C. Jones has been appointed supervisor of motor car operation of the Chesapeake & Ohio, with headquarters at Richmond, Va.

C. Y. Thomas, night roundhouse foreman of the Kansas City Southern at Port Arthur, Tex., has been appointed chief locomotive inspector, with jurisdiction over the system and with headquarters at Pittsburg, Kansas.

The M. K. T. announces that **J. H. Brunkhorst,** assistant shop superintendent at Sedalia, Mo., has been appointed shop superintendent there to succeed **William Walker,** retired. **F. W. Stevens,** general car foreman at San Antonio, has been promoted to succeed Mr. Brunkenhorst. **L. R. Center,** assistant car foreman at San Antonio, will succeed Mr. Stevens.

Civil

J. George Bloom, engineer of maintenance of way of the Rock Island, with headquarters at Chicago, retired February 1. **L. J. Hughes,** special engineer, with headquarters at Chicago, has been named to succeed Mr. Bloom.

J. C. Bousfield, division engineer of the Detroit Terminal division of the Wabash, has been appointed resident engineer on the construction of the Union Pacific Terminal at Detroit. Mr. Bousfield will be succeeded as division engineer by **C. T. Warren,** maintenance inspector. **C. A. Johnston,** track supervisor on the Chicago terminal division, has been named division engineer of the Detroit division, with headquarters at Montpelier, O.

The Rock Island announces that **A. C. Bradley,** division engineer of the Illinois division of the Rock Island, has been appointed engineer of maintenance of way of the first district, with headquarters at Des Moines to succeed **W. H. Petersen,** recently named chief engineer. Mr. Bradley will be succeeded by **F. W. Thompson,** division engineer of the Iowa division at Des Moines. **F. J. Nugent,** division engineer of the Nebraska-Colorado division at Fairbury, Neb., has been transferred to the Iowa division to succeed Mr. Thompson. **T. P. Warren,** division engineer of the Chicago terminal division at Chicago, has been named to succeed Mr. Nugent. **D. Ruhl** has been appointed acting division engineer of the Chicago terminal division to succeed Mr. Warren.

J. W. Knapp, assistant division engineer of the Chesapeake & Ohio, has been appointed supervisor of track, Rivanna subdivision, to succeed **L. D. Burdette,** deceased. **J. T. Crump,** has been named to succeed Mr. Knapp.

L. W. Althof, division engineer on the Oregon Short Line, with headquarters at Pocatello, Id., has been promoted to engineer of maintenance of way, with headquarters at Pocatello, to succeed **F. D. Nauman,** deceased. **William C. Perkins,** roadmaster of the Yellowstone district, has been promoted to division engineer of the Montana division, with

HUNT-SPILLER AIR FURNACE GUN IRON

FOR THE PRINCIPAL WEARING PARTS OF A LOCOMOTIVE

1. Cylinder Bushing
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3. Piston—Piston Bull Ring
4. Valve Bushing
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9. Pedestal Shoes and Wedges
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The HUNT-SPILLER Duplex Rings and Duplex Spring will solve the problem where a sectional packing ring is required, for it offers an exceedingly practical and economical installation for either new or worn cylinders.

Made only by

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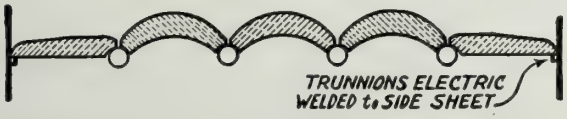
TRUE ECONOMY

Can be Secured in Steam Locomotives

by the use of



ECONOMY BAFFLE WALLS

THEY INSURE MAXIMUM LIFE OF BRICK WITH A MINIMUM WEIGHT ON THE ARCH TUBES

THE ECONOMY METHOD of SUPPORTING SIDE BRICK on TRUNNIONS ELECTRICALLY WELDED to the SIDE SHEET ELIMINATES the liability of the side brick dropping into the fire bed and the necessity of straightening or replacing bent arch tubes.

THE ECONOMY METHOD provides radiant heat near the side sheets, causing more complete combustion in this "COLD" area. It also PREVENTS the accumulation of coke and slag in the "pockets" resulting when inclined side brick are used, thus increasing the active firebox heating surface.

ECONOMY ARCH COMPANY

1843 RAILWAY EXCHANGE BUILDING ST. LOUIS, MISSOURI

Distributors of Locomotive Arch Brick Manufactured by
EVANS & HOWARD, LACLEDE-CHRISTY, A. P. GREEN and NILES FIREBRICK COMPANIES

headquarters as before at Pocatello. **M. H. Browne, Jr.**, division engineer of the Montana division, has been transferred to the Utah division, with headquarters at Pocatello. Mr. Browne replaces **E. E. Moberly**, who has been transferred to the Idaho division.

Peter Jenny, division engineer of the Milwaukee, with headquarters at Green Bay, Wis., has resigned and will be succeeded by **W. H. Blanchard**, division engineer at Beloit. **George K. Farner**, assistant engineer, has been named to succeed Mr. Blanchard. **R. A. Whiteford**, assistant engineer at Minneapolis, has been promoted to division engineer at the same point.

George M. Davidson, industrial engineer of the Chicago & North Western, and president of the Superior Coal Co., retired January 1.

Supply Trade Notes

Fairbanks, Morse & Co. has organized **The Fairbanks, Morse Water Supply Co.**, Chicago, to provide water supplies for railroads, industries and municipalities. **P. D. Bowler**, former president and general manager of Layne & Bowler, has been elected vice president and general manager of the new company.

John R. Sexton, manager of the railroad department of the **H. H. Robertson Co.**, Pittsburgh, has resigned to become associated with the Stone & Webster Engineering Corpn.

W. C. Stettinus, president and general manager of the **American Hammered Piston Ring Co.**, has been elected vice chairman of the board, and will be succeeded as president and general manager by **Allen W. Morton**, vice president.

The **Johns-Manville Corpn.** announces these changes in the railroad department: **Carl S. Clingman** of the St. Louis district has been appointed assistant general sales manager of the railroad and government department with headquarters in New York; Mr. Clingman will be succeeded in the St. Louis district by **A. C. Pickett**, special railroad representative at Houston; **D. B. Bell**, special representative in the St. Louis district has been transferred to Houston to succeed Mr. Pickett, and **Elliott Fairback** has been appointed special representative in St. Louis to succeed Mr. Bell.

Arthur G. Brown, Pacific Coast sales manager of the **Republic Iron & Steel Co.**, with headquarters at San Francisco, has resigned to become associated with the **United States Steel Products Co.**, San Francisco. **George F. Emanuels** has been appointed to succeed Mr. Brown.

F. W. Anderson, vice president and general manager of the **Northwestern Motor Co.**, Eau Claire, Wis., has been elected president and general manager to succeed **R. R. Rosholt**, president, who has been elected chairman of the board.

Burton Mudge, first vice president of the Bradford Corp., has resigned to become president of the recently organized **Mudge Corpn.** **Leslie C. Seward** has been elected secretary and treasurer.

H. E. McKee, assistant general manager of the **Electric Railweld Service Corpn.**, has been appointed general manager, with headquarters at Chicago.

L. C. Bihler, eastern traffic manager of the **Universal Portland Cement Co.**, and traffic manager of the **Carnegie Steel Co.**, with headquarters at Pittsburgh, has been appointed assistant to the president and general traffic manager of the Carnegie Steel Co. **Frank E. Guy**, assistant eastern traffic manager of the Universal Portland Cement Co., has been promoted to eastern traffic manager of that company to succeed Mr. Bihler.

R. H. Gwaltney has been appointed sales vice president of **The Gould Coupler Co.**, with headquarters in New York, and also was elected a director to succeed **George L. L. Davis**, resigned.

R. L. Belknap has been appointed sales manager, central region, for the **Gold Car Heating & Lighting Co.**, with headquarters at Chicago.

The **Pittsburgh-Des Moines Steel Co.**, fabricators of elevated steel water tanks, oil tanks and plate work, announce that **J. E. O'Leary**, in charge of sales in New York, has been appointed general sales manager with headquarters at Pittsburgh. **H. W. Ford** succeeds Mr. O'Leary as manager of the New York office. **G. A. Smith** will direct the construction and erection activities. **W. E. R. Moore**, formerly with the American Locomotive Co., has been appointed export manager.

T. F. Going, who has been a sales representative of **The Prime Manufacturing Co.**, railroad division, has been appointed manager of this division.

At the annual meeting of the **Vapor Car Heating Co., Inc.**, held January 29, **Samuel Higgins** retired as a director and **R. P. Cooley** was elected in his place. The position of vice president formerly occupied by Mr. Higgins was abolished.

W. N. Agnew, general traffic manager of the **Worthington Pump & Machinery Corpn.**, has been appointed assistant to the president and general traffic manager, with headquarters at New York.

Andrew Wells Robertson of Pittsburgh, president of the Philadelphia Co., was elected chairman of the board of the **Westinghouse Electric & Mfg. Co.**

Obituary

W. Sharon Humes who has been associated for a number of years with the sales department of the Magnus Company died at his home in Chicago January 29 of pleurisy. Interment was at Altoona February 1. Mr. Sharon had many friends both in the railroad and supply industry with which he had been associated since he graduated as a mechanical engineer from Purdue University in 1907.

George James Charlton, passenger traffic manager of the Chicago & Alton, died at Chicago January 28, aged 69. He had been in railway work over 50 years.

W. H. Dyer, superintendent of motive power of the Georgia & Florida, died at his home in Douglas, Ga., January 8.

M. J. Drury, at one time mechanical superintendent and superintendent of shops of the Santa Fe, died January 29 at his home at Topeka.

W. H. King, Jr., assistant to the president of the Seaboard Air Line, with headquarters at Norfolk, Va., died February 2 after a fall from a hotel window in Baltimore, Md.

H. H. Vance, general superintendent of western lines of the Southern, died at his home in Birmingham, February 2.

H. H. Hill, general manager, auditor and traffic manager of the Alabama, Florida & Gulf, died at his home in Dothan, Fla., January 18.

Arthur D. Palmer, advertising manager of the New York Central, died January 29 in New York, from injuries received when he was struck by a bus.

James M. Barr, former president of the Seaboard Air Line, died at Charlotteville, Va., January 10.

PRIDE IN THE JOB

DURING 1928 the railroads established their greatest records in operating efficiency and economy.

In the face of reduced traffic and increased wages the railroads last year made five new outstanding operating records:

In proportion to the amount of traffic hauled, fewer trains and locomotives were required in 1928 than ever before.

The average load per train was the highest ever reported.

The distance traveled each day per freight train averaged more than 307 miles, an increase of approximately 20 per cent over that for 1923.

The number of tons of freight moved one mile by a train per hour was greater in 1928 than ever before.

Freight was handled with the greatest conservation of fuel ever reported.

This performance record has been largely brought about by pride in service and equipment. Capital expenditures made last year for new equipment, additions and betterments amounted to $650,000,000, which assisted materially in establishing the new efficiency records.

Despite exceedingly heavy movement of grain and grain products as well as of perishable traffic which was the heaviest in railroad history, traffic demands last year were more promptly met than ever before and the service was of the highest character ever afforded the public.

SOUTHERN PACIFIC

JORDAN SPREADER
"Does the Work of an Army of Men"
SNOW PLOW ★ ICE CUTTER ★ DITCHER
UNIVERSALLY STANDARD
O.F. JORDAN COMPANY
WALTER J. RILEY, PRESIDENT
EAST CHICAGO, INDIANA

JORDAN
SPREADER - DITCHER

Indispensable in mines, on railways, public works, industrial plants, etc.

Built in Standard and Narrow Gauge Sizes

U. H. Broughton, at one time president of the Virginian, died at his home in London, England, January 30.

George H. Charlton, passenger traffic manager of the Chicago & Alton, died at his home in Chicago, January 28, after more than 45 years' service with that road.

W. R. Harley, secretary of the Soo Line, with headquarters at Minneapolis, died there January 11.

Ernest S. Benson, comptroller of the Chicago & Alton, with headquarters at Chicago, died December 31 at Phoenix, aged 73, after 57 years of railway service.

F. L. O'Leary, treasurer of the Wabash from 1890 to 1918, died at his home in Watertown, N. Y., January 14, aged 76.

William H. Thompson, general freight agent of the Missouri Pacific at St. Louis, died there January 18.

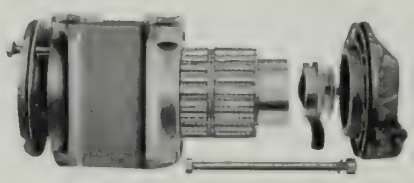
James J. Doyle, president of the Washington, Baltimore & Annapolis Electric, died at his home in Baltimore, January 21, aged 53.

A. F. Robinson, bridge engineer of the Santa Fe, with headquarters at Chicago, died at his home in Oak Park, Ill., January 20. Mr. Robinson was 75 years of age and had been bridge engineer of the Santa Fe for more than 30 years.

John E. Dalrymple, at one time vice president in charge of traffic and express of the Canadian National at Montreal, died there January 18, aged 60.

Charles H. Winders, western counsel of the Northern Pacific, with headquarters at Seattle, died at his home in that city January 17.

J. C. Eden, former western traffic manager and assistant general traffic manager of the Great Northern, died January 14 at Seattle.



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RAILWAY ROLLER JOURNAL BEARING
More than 450 Melcher equipped cars in Railway service.
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DE PERE, WISCONSIN

SPECIALISTS IN FORGED
Center Plates
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Send us your specifications
Steel Car Forge Company
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'RALSTON BUILT'
Steel and Composite Cars

Completely rebuilding large numbers of steel cars in record time is an achievement that Ralston Steel Car Company has repeated time and time again.

This is possible only through our excellent facilities and well-balanced program, which, together with skilled workmen and competent engineers, keep the cars moving through the plant on regular schedule.

THE RALSTON PLANT is equipped to build New Cars, to Rebuild Old Cars, to Repair and to supply repair parts. All materials and work of the highest QUALITY and performed under expert Engineering Supervision.

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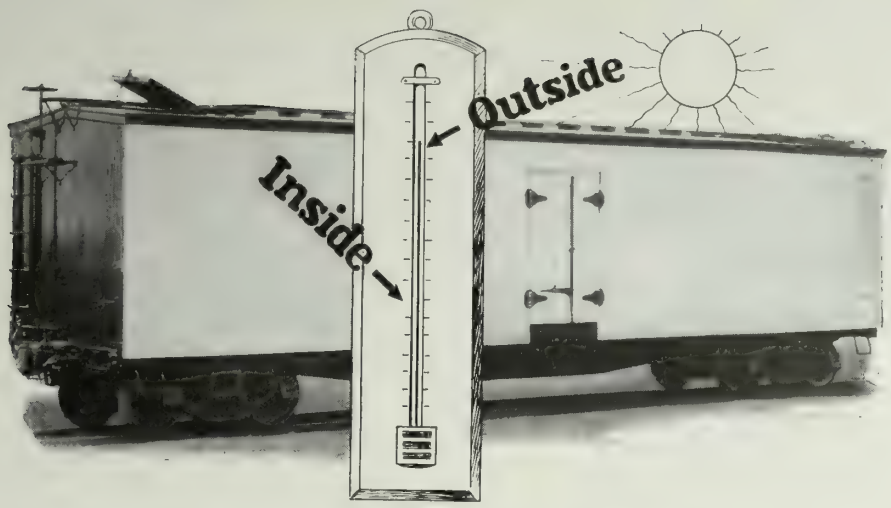
COLUMBUS, OHIO



Keeping the **COLD IN** *and the* **HEAT OUT**

is a job best left to Balsam-Wool Refrigerator Car Insulation

Here, briefly put, are the reasons why Balsam-Wool is being so widely used today for the insulation of refrigerator cars:

Light Weight—Saving 1440 to 2240 pounds per car.

Efficient—92% "still air" assures high insulating efficiency.

Flexible-Elastic—A stretch of 20% takes care of the vibration and strains of moving cars.

Easily Applied—Standard methods are used in applying Balsam-Wool.

Durable—Assuring low maintenance costs.

Unstitched Liners—Windproof and waterproof.

Most Insulation per Dollar—Measured in insulating value, Balsam-Wool is the most economical insulation on the market,

Sizes—Include any width up to 9 feet. packed in sealed rolls in any length. Samples and complete information on request.

WOOD CONVERSION COMPANY

Insulation Division of Weyerhaeuser Forest Products

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Railroad Sales Offices: Chicago, 360 N. Michigan Ave.

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Manufacturers of the Balsam-Wool line of Industrial Insulations for Refrigerator Cars, Passenger Cars, Motor Buses, Airplanes, Domestic Refrigerators. Also makers of Balsam-Wool Standard Building Insulation and Nu-Wood Insulating Board.

THERE IS MORE
To Know About

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STANDARD

DRAFT
GEAR
PROTECTION

for cars and lading

Than can be told in an advertisement. In your interest as well as our own will you find out definitely what this really means to you?

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Transportation

The National Monthly of the Transportation Industry

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The Engineers' Convention At Chicago

Vol. IV March 1929 No. 3

Operating Economies . . . Easier Starting . . . Quicker Acceleration . . . Smoother Riding . . . On Time Schedules . . . More Cars per Train . . . When Journal Boxes are equipped with . . .

HYATT

ROLLER BEARINGS

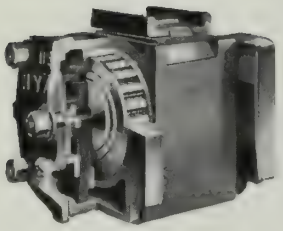
PRODUCT OF GENERAL MOTORS

And more, Hyatt Roller Bearing equipped journal boxes meet every A. R. A. requirement for application to new or existing cars. This eliminates the need of fussy alterations . . . and extra stores and supplies.

Because A. R. A. standards are Hyatt standards, more than sixty railroads have placed hundreds of cars and many complete trains on a Hyatt basis.

Simple to install, Hyatt Roller Bearing journal boxes are likewise carefree in operation, requiring no complicated adjustments to keep them functioning properly.

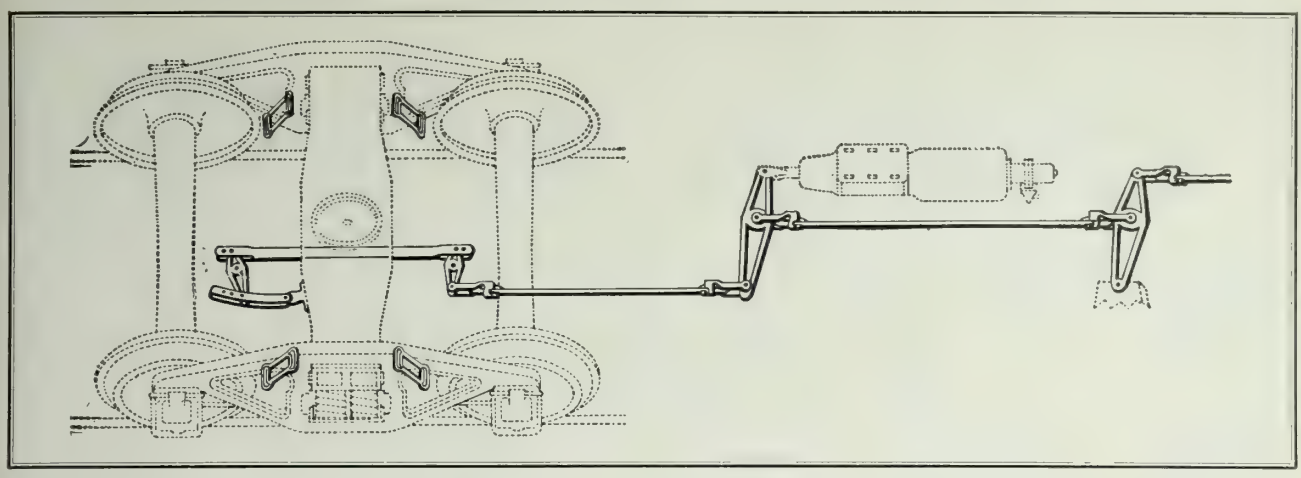
From whatever angle you consider anti-friction bearings for journal boxes, you will find the Hyattway is the Right Way.



Hyatt Journal Box, sectioned view above, shows bearing in place. Hyatt equipped boxes fit A. R. A. Standard pedestals without change of a single truck part.

HYATT ROLLER BEARING COMPANY

Newark Detroit Chicago Pittsburgh Oakland



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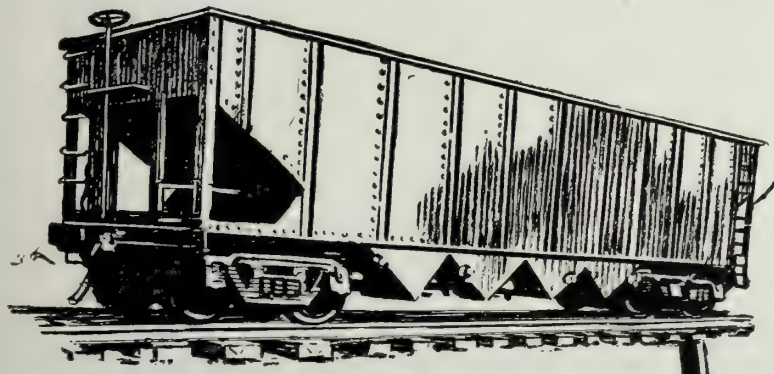
FOR greater safety and fewer replacements, specify Schaefer Foundation Brake Gear details—Truck Lever Connections, Body and Truck Levers, Brake Beam Hangers, Brake Rod Jaws, and the new Schaefer Wearing Plate (eliminates side frame wear.

Used as a unit, Schaefer Foundation Brake Details not only prevent excessive slack accumulation due to pin hole wear, but they make possible the *reduction of approximately 115 pounds in weight per car set.*

All Schaefer Foundation Brake Gear Details are drop forged of special wear resisting steel. Write for descriptive bulletins.



Any Car is a Safer Car with Schäefer Foundation Brake Details

Schaefer Drop Forged Self-Locking Brake Hangers

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Schaefer Drop Forged Body and Truck Levers

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Self Guarded
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A Recent Installation of CONLEY RIGID FROGS at Ft. Worth, Texas.

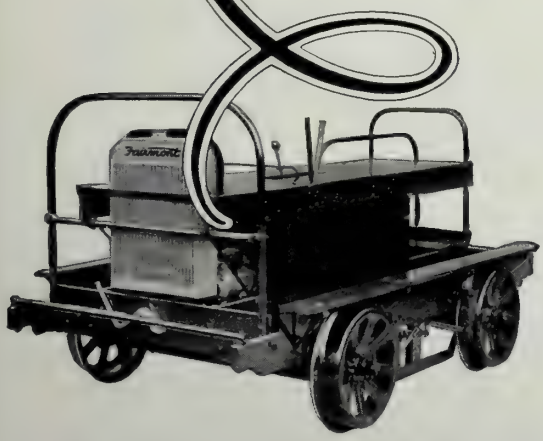
CONLEY
SOLID MANGANESE SPRING FROGS
Have Proved Their Merit
FOR SAFETY AND ECONOMY IN MAIN LINE SERVICE

Let Us Tell You About Them

CONLEY FROG & SWITCH CO.
MEMPHIS, TENNESSEE

Fairmont AND Mudge

Railway Motor Cars



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Equipped with four-cylinder 33 H. P. Continental Industrial engine and Brown-Lipe heavy duty transmission. This car gives you three speeds backward as well as forward.

One of the popular features of Fairmont Service is the co-operation and contact afforded by Fairmont executives!

Specialists in a *specialized* business, these men stand ready with aid in the solution of any problem which has to do with applying motor cars to railroad maintenance. Co-operation of this type is especially valuable when you stop to consider that *over half of all the motor cars in use are Fairmont Products.*

We would consider it a privilege to serve you as we have others.

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SECTION MOTOR CARS
A2—M2—S2—M14—WS2
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THE RAILROAD WORLD KNOWS

When Safety "Hangs By A Thread"

PASSENGERS . . . train crews . . . equipment . . . lading . . . all at the mercy of bolted connections!

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You can answer "Yes!" . . . all the time . . . if bolted connections are made secure with Grip Nuts . . . with their 100% standard thread . . . their ever-holding positive lock . . . their complete security . . . and dependability.

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Transportation

(Reg. U. S. Patent Office)

The National Monthly of the Transportation Industry

MARCH, 1929

VOLUME FOUR NUMBER THREE

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WHAT RAILWAYS DID FOR A CITY, *Ernest R. Chamberlain*

EDITORIAL COMMENT, *The Editor*

WHAT AIR TRANSPORT IS DOING, *Winsor Williams*

QUEER THINGS IN THE NEWS

LITTLE STORIES ABOUT BIG MEN

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The Busy Engineers At Chicago

Thoughtful Men in Conclave

By W. J. Parkes

SOME KEEN minded gentleman said the other day in Chicago that if constructive thinking is the big need of the time much comfort for the future ought to be found in the proceedings of the American Railway Engineering Association, then submerged in its 30th yearly convention at the Palmer House.

"It used to be said of some of the big conventions," this observer went on, "that the majority spent most of its time in the hotel lobby or the theaters. Indeed a few railroad executives doubted gravely whether their companies were getting value in return for the money they spent in sending their men to such gatherings. Some railroad managements were a bit nasty about it. But no sensible manager has any such thought nowdays, especially in such gatherings as this, or of the important divisions of the American Railway Association. The place is literally filled with constructive thought. One morning with the engineers is about all I can take. I get a headache."

Looking over the membership classification of the association it is not difficult to see why it is a thoughtful and energetic outfit. Secretary Fritch's yearly report carried the convincing testimony. The roll, it is shown, carries the names of more than 1800 heads of engineering departments; 112 general superintendents, division superintendents, and other transportation men; 17 officials of mechanical departments, 25 purchasing, accounting and traffic officers, not forgetting more than 200 of the higher executives, among them 58 presidents and 73 vice presidents.

These men are workers and thinkers. If they were not certainly they would not have their present positions. True, for the commoner they

are at times a trifle high hat, and a little bit more so right now since one of their number has been inaugurated President of the United States. But in this they seem fully justified. Every member seems personally determined to live up to the high standard set for the profession. These are the men who realize that engineering is assuming constantly a more important place in the lives of civilized nations, men who believe the engineering colleges are doing their level best to carry properly the responsibility of training men fit to take a leading part in the social and industrial readjustments now becoming increasingly necessary and difficult. The increasing use of power; the tremendous industrial developments, especially as respects transportation; the marvelous achievements of science and engineering in annihilating distance and time, which are about the same thing as money; these are responsibilities resting upon the shoulders of broad minded men fully impressed with the seriousness of their part in providing comforts, conveniences, speed and safety for the common good. And the engineers convey the idea by their bearing that in every way they know how much more character is involved in this than is book knowledge, important as that may be.

"The most important thing in the world, next to the food supply," said George M. Reynolds, a Chicago banker, "is transportation. Unless an article is at a certain place at a certain time it has no value." The thought was expressed in half a dozen of the exceedingly important addresses of the engineers' 30th yearly gathering. More important than this, however, was the oft-repeated belief that transportation is taking on a wholly different characterization than at any time in history. Said W. D. Faucette, the retiring president of the association in his yearly address:

"Insofar as progress in the world of transportation shall continue, so also shall the responsibilities of our association increase, and the solution of problems of economics will become more pressing. In this time, which we must acknowledge to be a period of transition, it is of paramount importance that the efforts of ours and allied associations should be directed toward the effecting of economies and the solving of problems which will enable us, as an agency of transportation, to say what will help produce a service satisfactory and economical, which production shall bring a reasonable return to the owner. This one idea shall ever be before us in searching for the proper answers.

"It will not be amiss to touch briefly upon the motor transportation of this country, and the increasing air transportation efforts. So far as heavy tonnage movement is concerned, I believe that we can defer consideration for the present of the possibility of air transport having much adverse effect upon the main revenues of our railroads. I fully believe that, with the remarkable records that are being made month by month, the field of quick transport by air will be confined chiefly to those articles of high intrinsic value, such as mail, securities, small but important parcels, and human freight, but not of large weight. This will tend to prevent the air transportation service from making as great inroads in the business of trunk line carriers as have been brought about through the present and ever-increasing motor transport operations.

"This problem of motor transport is not a matter of reckoning with an organization in the sense of an opposing competitor, or group of competitors. We have reached a place in our civilization where a new instrumentality has become a part of our life —it has changed business, social and civic customs and created a changed condition. It is a fact and not a theory."

The business of meeting inevitable competition with which railroads must contend as with any other great step in the march of progress, was considered, too, by Major General Edgar Jadwin, chief of engineers of the United States army. "No transportation question," said he "is more important for the future development of our country than cooperation between railroads, water-ways and highways. And to these must soon be added airways.

"There is not the remotest danger that the waterways will ever drive the railways from the field. *****

"The railroads are equipped to handle all classes of freight. Water transportation, cheaper than any other, is best suited to certain commodities, especially those carried in bulk. Trucks are ideal for comparatively short haul movements where speed is essential. The present use of aircraft is primarily for passenger traffic and the movement of mail and other limited

A. R. E. A. OFFICERS ELECTED AT CHICAGO

President, Louis Yager, assistant chief engineer, Northern Pacific.

First vice president, G. D. Brooke, general manager, Chesapeake & Ohio.

Second vice president, L. W. Baldwin, president, Missouri Pacific System.

Secretary, E. H. Fritch (re-elected).

Treasurer, F. J. Stimson, assistant chief engineer maintenance, Western Region, Pennsylvania (re-elected).

Directors: J. E. Armstrong, assistant chief engineer, Canadian Pacific; C. C. Cook, maintenance engineer, Baltimore & Ohio; Frank Ringer, chief engineer, Missouri-Kansas-Texas.

Nominating Committee: C. W. Baldridge, assistant engineer, Atchison, Topeka & Santa Fe; A. N. Reece, chief engineer, Kansas City Southern; H. C. Crowell, assistant to chief engineer, Pennsylvania; W. T. Dorrance, designing engineer, New York, New Haven & Hartford; C. H. Tillett, signal engineer, Canadian National, Central Region.

G. D. Brooke,
First Vice President.

amounts of light, valuable cargoes at great speed. There are numerous instances where two means of transportation have been combined to the mutual benefit of both. Combination air and rail passenger service is already established. The use of trucks to assemble freight at rail and water heads is becoming more common. The maximum employment of each for its special commodity group releases the others for better service along the lines for which they are particularly fitted.

"The policy should be cooperation. The people are recognizing more clearly as the years roll on the advantages and limitations of each utility—water, rail, truck and airways. This country has attained its unsurpassed greatness through individualism, cooperation and the ability eventually to keep its development and growth from being permanently shackled. The people, as a whole, always win in the long run. They want cooperation between their transportation facilities and will eventually have it. Let us cooperate and lead in giving them cooperation of railroad, waterway, highway and air transportation to the common benefit of all these transportation interests and of all the people of the nation."

The idea of cooperation in providing for the public the best kind of transportation seemed everywhere dominant. Only a few days before the engineers convened in Chicago the same thought had been expressed, in the Motor Transport Division meeting at St. Louis. In that instance the speaker, a manufacturer of motor coaches, had visualized the railroad as owning eventually and operating all forms of transportation. His address, printed elsewhere in this issue, was frequently the subject of conversation in the Chicago convention. "Why shouldn't this be the logical situation?" one of the engineer delegates inquired. "Railroads have been in the transportation business for more than a hundred years. If anyone understands what the public wants surely it is railroad men. However, this is only one of the great developments of the future." It was an undercurrent of the meeting.

The big convention was called to order at 9:30 a.m. Tuesday, March 5, by the president, W. D. Faucette, in the grand ballroom of the Palmer House. Former President Coolidge sent a letter regretting his ability to be with the engineers, concealing deftly, however, the joy he must have felt upon being free from just such duties after seven years of it. Letters were read also from Charles E. Mitchell, president of the National City Bank of New York, and Charles M. Schwab, chairman of the board of the Bethlehem Steel Co.

L. W. Baldwin,
Second Vice President.

President Faucette complimented the 28 standing committees whose members have given such loyal service to the association in the work of investigating and reporting upon the questions assigned them, paid high tribute to the board of direction, announced the addition of 325 members, and described at some length the fine work of the whole organization.

"Since 1890," said he, "the marked increase in all lines of industrial, scientific and transportation activities is probably without parallel in the history of the world. These 40 years have witnessed such achievements

W. D. Faucette,
Retiring President.

that if we attempt to project ourselves into the future, I do not believe that we can reasonably forecast where we will reach and what will be our experiences."

As did other speakers later on in the convention and at the yearly banquet, Mr. Faucette spoke particularly of highway development, its inevitable effect upon steam transportation, and the amazing growth of the motor industry. Engineering, he said, has a principal part in all this modern progress because engineering is but science applied to industry.

E. H. Fritch, the faithful secretary of the association emphasized in his report the important value in having railway men from every part of the North American continent assemble and exchange viewpoints. The successful conducting of such organization and its value, he said, was embodied in the formula of Sir Henry Thornton, president and chairman of the Canadian National Railways, an engineer of international standing.

"Nothing," said Sir Henry, "so makes for results as organization, the avoidance of confusion. To do a thing, clear the mind; make a clean-cut picture of the thing to be done; build a formula that will fit the undertaking; organize your effort; shut out everything else, and turn on the steam. Accomplishment is certain."

How this plan works out was shown, the secretary said, in the numerous and very complete reports of the standing committees all of which, in workmanlike way, are prepared, printed and distributed to the members in advance of the convention so that all may be prepared, if

E. H. Fritch,
Re-elected Secretary.

they wish, to discuss the questions intelligently.

Another extremely interesting part of Secretary Fritch's report was an alphabetical list of the railroad executives included in the association's membership. This list included 60 or more roads representing 215,687 miles of line.

F. J. Stimson, treasurer of the association, was absent because of illness. The time he would have taken to present his report was therefore given over to committee reports at the conclusion of which President Faucette introduced C. R. Harding, engineer of standards, Southern Pacific Co., who described that company's proposed bridge across Suisun Bay, to cost $12,000,000, to replace the ancient ferry used since 1879 across Carquinez Straits. This paper, with illustrations, will be found elsewhere in this edition.

An important report of the first session was that of the committee on relations with universities. This described efforts made to develop just what are the essential qualifications desired in recruiting young men for railroad work in cooperation with the institutions of learning all over the country. Nothing definite was reported except that the committee's proposed questionnaire had been approved by leading organizations engaged in making similar investigations.

At the conclusion of the reading by the chairman, R. H. Ford, discussion was started by W. C. Cushing of Pennsylvania, who spoke at length of plans for encouraging the promotion of engineering training for railroad work. "It is believed by some of us railway men," said Mr. Cushing, "that there can be considerable improvement in the method of conveying technical knowledge for use in the sciences applied to the arts, so as to equip the student with the fundamental principles which he will be enabled to use with confidence and ultimately become an accomplished engineer, or a skilled technician in the other lines of activity required of the college-trained man in the several departments of a transportation system. Indeed, the occasion for change, provided it brings improvement with it, has been recognized by the college management, and various new methods from new ideas adopted.

"The engineering graduate is ambitious, but his main thought is for the future. He will be much concerned in avoiding an overcrowded condition of that employment which would prevent the possibility of his attainment of his main desire. Lack of opportunity for advancement in employment is the principal reason for causing discontent. An effective plan for dealing with this subject is very desirable in every department which has the employment of college men for various classes of work."

In the second day's session, after the reading of a letter of regret from R. H. Aishton, president of the American Railway Association, and the presentation of several important committee reports, already distributed, President Faucette introduced Major General Edgar Jadwin, chief of engineers, United States Army. General Jadwin spoke on "Cooperation Between Railroad and Army Engineers," a title which served to cover delicately the governmental hope that railroad men would be just a bit more gentle in their attitude toward the waterway competition imposed against steam railroads at the people's expense. General Jadwin is a gentle gentleman himself, as all army officers know, but particularly when he speaks in the presence of railroaders. His address represented his own viewpoint, of course, and it was received by the loyal ten hundred courteously, as the expression of any such accomplished engineer should be received.

General Jadwin gained sympathetic attention instantly by describing the patriotic work of engineers during the World War; told how a railroad must cooperate in time of military necessity, and slipped almost imperceptibly into the complacent assurance that waterways are not and never will be a danger to the future good fortune of steam railroads. The mind of the real engineer was working, however, and not the politician, when he declared that rail and water and automotive and air transportation really are complementary or should be, and suggested that one day they will all be working together.

Committee reports representing, in some cases, the continuing work of

The New Palmer House, Chicago, Where the American Railway Engineering Association Held Its Convention.

years, and all of them standing for the effort of a year at least, occupied the most of the convention's time. Just how important the country's engineers and their companies believed the occasion to be was pretty well demonstrated when it came to seating about 1200 guests at the yearly banquet at the Palmer House. This took place the evening of Wednesday, March 6. In the course of the enjoyable evening a silver cup was given to Mr. Faucette retiring president, as an expression of the members' high regard, and Mr. Faucette, to show himself a really good chap, handed a new gavel, made especially for the occasion, to Louis Yager, his successor.

And then came the speeches. Mr. Faucette, acting as toastmaster, introduced Vincent Massey, envoy extraordinary and minister plenipotentiary from Canada to the United States; W. R. Cole, president of the Louisville & Nashville, and James A. Parker, chairman of the interstate and foreign commerce committee of the house of representatives.

Mr. Cole, always a forceful and interesting talker, spoke of railroad problems of today, and created no astonishment whatever when the principal one proved to be that of getting enough money to pay the bills a railroad has to pay, and leave over a few dollars for the unhappy stockholders. The famous net return was mentioned, but what rose to the top was his declaration that there really isn't any foundation to the belief that if the government should permit a fair valuation on the properties used in the public's service freight and passenger rates would immediately rise beyond any reasonable standard. "I believe the Interstate Commerce Commission is laboring under some such fear," said President Cole. "Increases in rates, where a railroad already is making money, are superimposed on earnings. So that to increase the earnings of a railroad 50 per cent, it is not necessary to increase the rates 50 per cent, but only 10 per cent. Yet, it is widely heralded that, should the bases for reproduction costs be those in effect as of the time of the finding, it would result in an increase of say 50 per cent over the value, toward which the commission is directing its efforts, hence an increase in freight rates and in passenger fares of 50 per cent would be necessary, although nothing of the kind is true.

"Inextricably concerned with the question of revenue is this question of valuation. I am not altogether sure that the value of a railroad is the sole standard which should be erected in determining what a railroad shall be permitted to earn, but it is certainly a vital factor, and the law has fixed that yardstick.

"The notion of depreciation held by the commission is a wholly untenable one. So far as value is concerned, there is no depreciation in the value of a well maintained railroad. It has always seemed to me that this question has been largely confused with the loss of service life of the units that go to make up a railroad. But the commission is not valuing a lot of cross-ties and rails and bridges and structures. It is valuing a railroad, a composite transportation machine.

W. R. Cole, President, Louisville & Nashville, A Banquet Speaker.

"I am rather convinced that the cost of reproduction of a railroad is not the sole basis for its value. We see many cases of prosperous railroad properties that are worth vastly more than it would cost to build them, and others that are not worth half what it would cost to reproduce them. So there is a fundamental defect there somewhere that has to be met."

James S. Parker, chairman of the house committee on interstate and foreign commerce, spoke on "The Consolidation of Railways." His frank explanation of the way in which some regulation is built up around an idea was diverting. "The railways," said he, "are subjected to a tremendous amount of regulatory legislation enacted by state legislatures and congress. I doubt very much if you fully appreciate the strenuous task that it is to draw a complicated bill, such as any important railroad bill always is. You start out with an idea in your mind and you form your language to cover that point thoroughly; when you have finished you read it over again and think of it from a different angle and you find that while you have accomplished the thing that you wished to accomplish you have also done a dozen things that you did not wish to do. So you have to begin all over again."

Mr. Parker described the growth of railroads and the development of the country they have served. Some roads, he said, are operated constantly at a loss. "In my opinion," he continued, "speaking only for myself, the only solution of the question is the adoption of a scheme of consolidation or unification, whereby the railroads of the country can be combined into a very limited number of strong, efficient transportation systems so constituted that there will be competition between the various systems as to service; I do not say competition in rates, because the rates are a matter of regulation.

"Upon many of these railroads there have grown up prosperous communities whose welfare and absolute existence are dependent upon the transportation facilities offered by some railroad, which, in its entirety, is financially unsuccessful. It is inconceivable to me that these roads can ever be abandoned and these communities deprived of their means of transportation, which, of course, would mean the destruction of the property of the community, for the property would be worthless without transportation facilities.

"A certain element among the railroad management is apt to be severely critical of the Interstate Commerce Commission. I hold no brief for the Interstate Commerce Commission; its members are human and have made mistakes in the past as they will make mistakes in the future, but if their decisions are honest and their mistakes are honest it ill becomes the managements of the railroads of this country to find much fault. Allow me to venture a personal opinion; the one thing that stands between private ownership of transportation and government ownership is the Interstate Commerce Commission. Business—and when I say business, of course, I mean to include the business of transportation—is controlled in three ways: By unlimited and unrestrained competition; by regulation, or by socialism. We recognized in the

S. P. McGough, Lorain Steel Co., Elected President, N. R. A. A.

Transportation Act the fact that the railroads must be protected from ruinous competition, so we adopted the principle of a certificate of public convenience and necessity before a railway could be built or expanded, which is a definite recognition of the fact that the railroads must be protected from useless and ruinous competition. That, in turn, imposes upon the railways the obligation to charge rates that are just and reasonable.

"Under the valuation act, which was passed to determine whether the railroads of the country were overcapitalized, it has been clearly determined by the Interstate Commerce Commission that they are not overcapitalized at all. It will be many years, in my judgment, before the actual value of the railroads will be determined, even relatively, for when the valuation under the Transportation Act means valuation for the recapture of excess earnings as well as the fixing of rates, it is quite a different matter from the tentative value for rate making purposes. Personally, I was never particularly impressed with the wisdom of the recapture clause and was of the opinion that it would not work."

The provisions of the Parker Bill for railroad consolidations were concisely described in this way by the speaker:

(1) It authorizes railroad unifications which will promote the public interest and lays down very definite and specific standards to be considered by the Interstate Commerce Commission in determining whether or not a proposed unification will in fact promote the public interest.

(2) It removes the defects of the present law which have combined to prevent the promotion of the policy of voluntary unifications.

(3) It repeals the provisions of existing law under which so-called mergers have been attempted (although none has actually been authorized) and which have been subjected to considerable criticism.

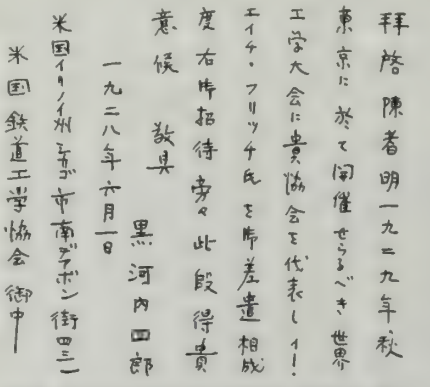
(4) It grants to carriers all the power necessary to carry into effect a unification which will promote the public interest and which has been approved by the Interstate Commerce Commission, and removes existing barriers of federal and state laws which otherwise would prevent the carrying into effect of the congressional policy.

(5) It affords adequate protection to dissenting stockholders who are not in accord with the will of the majority, and who wish to withdraw from the enterprise.

(6) It relieves the commission of the tremendous and probably impossible task imposed upon it of preparing a complete and comprehensive plan for the unification into a limited number of systems of all the railway properties within the continental United States.

(7) It prohibits all unifications except those proposed and carried out in accordance with the act, including consolidations, mergers, acquisitions of properties, and acquisitions of voting securities.

To be serious, we shall never get an adequate system of unification until the various strong lines are willing to sit down and deal with one another across the table to do what is in the best interests of the public and not solely what is in the interest of the individual lines, for I believe that in the long run the public interest is identical with the railroads' interest.



拝啓 陳者明一九二九年秋
東京に於て開催せらるべき世界
工学大会に貴協会を代表し
エイチ・フリッチ氏を帝差遣相成
度右帝招待旁々此段得貴
意候 敬具
黒河内四郎
一九二八年六月一日
米国イリノイ州シカゴ市南アボン街四三一
米国鉄道工学協会御中

The Japanese Government Invites Secretary Fritch to Attend the World Congress of Engineers at Tokio

In speaking of this suggested meeting Mr. Parker, of course, declared "the cards should be face up on the table."

Louis Yager, who was elected president of the association for 1929, is assistant chief engineer of the Northern Pacific Railway. He is a student, a thinker, a reader on the topics likely to interest such a man, and these include, of course, scientific, political, economic subjects. Indeed he may be best described as one of the engineers who get about all there is to get in any subject whether it is a book or a question or investigation assigned him by the committees with which he has worked. He has a wide circle of friends and acquaintances, is a good mixer and a charming companion. He has been with the Northern Pacific for many years except during the World War when he was lent to the U. S. Railroad Administration as chief maintenance of way engineer. He has been a member of the association since 1911, and always has been active in its service. Mr. Yager was born in July, 1877, at Germantown, Wis., and is a graduate of the University of Minnesota. He went to work for the Northern Pacific immediately after graduation.

A. L. Greenabaum, Vice President, O. F. Jordan Co., Retiring President, N. R. A. A.

A pleasant announcement was that Secretary Fritch has been delegated by the board of direction to attend the World Engineering Congress to be held at Tokio, Japan, next fall. Such an assignment is, naturally, the board's way of recognizing Mr. Fritch's faithful service as secretary since 1906.

With the N.R.A.A. in the Coliseum

Time had been arranged for all delegates to visit the Coliseum where the National Railway Appliance Association had a very wonderful exhibition of its products. That exhibition contained a good many things in which engineers are interested so that, as might be expected, hundreds of them went there at every opportunity. In addition to this element there were throngs of railroad men

from all the departments, and mingled with the others were the casuals, the crowds of inquisitive from the city itself, and the intelligent who simply and frankly wished to learn what were some of the things that made a railroad go.

"You could enter that show in there with nothing but an open mind," said one visitor, "and—if you had the price—you could come out with the materials for building a railroad. Everything from the theodolite and the measuring tape for laying out a right of way, to the ties, rails, steel and structural material for the stations, water tanks, treating plants, and wayside structures, frogs, switches and coaling stations, even to the inspection cars to inspect the track when laid—and killer for the weeds which will grow on the way side. You can depend on the weeds every year."

The displays have been a regular part of the engineers' yearly meetings for a decade, and have been increasingly interesting and larger every year. This year 18 or 20 firms failed to get space because every inch of floor in the big halls of the main buildings and the two annexes was taken; and this space is more than 70,000 square feet. About 190 manufacturers had devices of one kind or another on display. C. W. Kelly, the wide and widely known secretary of the National Railway Appliance Association, said he could have sold enough space, if it had been available, to relieve his mind of several troubles. But the secretary always has troubles.

In the regular business meeting of the association, but in the unavoidable absence of President A. L. Greenabaum of the O. F. Jordan Co., the vice president, S. P. McGough presided. Mr. McGough subsequently was elected president for 1929. He is now western sales manager for the Lorain Steel Co., Chicago. Other officers elected were:

Vice President, W. H. Fenley, Kerite Insulated Wire & Cable Co., Chicago; secretary, C. W. Kelly; directors for three years, A. S. Anderson, Adams & Westlake Co., and M. C. Beymer, Oxweld Railroad Service Co., Chicago; director for one year, H. W. Renick, Magnetic Signal Co., Los Angeles. The report of the nominating committee was submitted by L. E. Weidman, of the Frog, Switch & Manufacturing Co. The other two members of the committee were W. H. Armstrong, Ingersoll-Rand Co., and Alex Chapman, Rail Joint Co.

Mr. McGough has been a good worker in the organization ever since it began to make exhibitions. He is a conservative kind of man, very widely known, somewhat retiring, a popular official. He was born in Franklin, Pa., in 1874. He started his engineering career on the Baltimore & Ohio as a rodman when he was 20 years old. He has been with the Lorain Steel Co., since 1902.

The first thing one saw upon entering the Coliseum was the radio train control (General Electric) and practically everything electrical a railway can use. Then came Fogg (McLean-Fogg Lock Nut Co.), master of ceremonies at everything conventional, showing how to make every nut stay put.

H. H. Robertson was ready to sheathe, roof and ventilate the enginehouse and other railway buildings with asbestos protected metal while the seventeen Oxweld Railroad Service Co., representatives glad-handed the delegates, and Clyde P. Ross (Roberts & Schaefer Co.) had a talk with all the railway officials at the show.

Crowe demonstrated in 14 seconds how to cut everything safely while Chipman was watching for a chance to kill all the weeds on the right of way, around the station yards, or anywhere else.

Buda showed an inspection car any chief engineer or even the president would be proud to use. It had all

The Old Coliseum, Chicago In Which the National Railway Appliance Association Presented An Unusually Interesting Exhibition of the Products of Its Members.

the comforts of a hotel and was not nearly so expensive, with unusual safety features, honest-to-goodness rubber cushioned tires and seats that fitted all over.

J. Will Johnson (Pyle-National Co.) made it easy to see everything in the yard with his new sheet metal flood-lights and other lighting equipment while his boys explained carefully, how it was done at such a small cost.

Everybody knew the Fairbanks-Morse crowd and their motor cars, pumps and motors.

Al Greenabaum, of the O. F. Jordan Co. appeared in time to do his stuff with the executive committee in making the show go round with one hand while dispensing 2-in-1 spreader ditchers all over the country with the other.

The Union Switch and Signal Co.'s space and a large one under the generalship of Blackmore was always crowded—showing how not to stop a train to give it orders to proceed.

Rennick traveled from Los Angeles to show magnetic crossing signals and he was busy at it, too.

Did you ever see a Johns-Manville exhibit without George Nichol with his cheerful greeting that makes you feel that you are just the one man in America he wants most to see?

Fairmont Railway Motors, Inc. had one of the largest and busiest spaces in the Coliseum. It was crowded with interested railway men looking at the Fairmont and Mudge motor cars, big and little, to meet all needs.

Masters (National Lock Washer Co.) could tell more about lock washers in a nice way in less time, and make visitors like it, than they ever thought was in such a small object.

Hayes derails and bumping posts are old at the business but developing all the time the Type W Bumping post still holding down its record that never a one has been destroyed and scrapped. "Gus" Nichols has added roller bearings to his line of turntables and turntable tractors.

You don't have to drive or pull spikes by hand anymore—Armstrong (Ingersoll-Rand) will do it for you pneumatically, and a lot of other things too.

Along came Conley from Memphis with Rogers of the P. & P. U. on one arm and a Conley Frog on the other.

Jimmie Rowe did the honors for the Chicago Pneumatic Tool compressors, tie tampers, spike drivers, drills, grinders and all the pneumatic tools anyone could use. He knows how they should be used too—and Corlette showed samples of the Wood Conversion Co.'s insulating materials and how they work in a moving car.

Carter (Louisville Frog Switch and Signal Company) was so strenuous in explaining his interesting exhibits that he went home sick at the end of the show.

The I. C. C. and Train Control

Speaking before the Signal Section, A.R.A., in Chicago, March 4, upon special invitation of Chairman Stoltz, W. P. Borland, director of the bureau of safety of the Interstate Commerce Commission, said there seemed to be a widespread misunderstanding of the precise meaning of that body's report respecting train control devices. It was not the wish of the commission, Mr. Borland said, to be understood as having abandoned the use of train control devices. Experience with devices already installed by the roads indicated that further development and improvement was essential. The commission wished to let the roads have plenty of time to work out these problems. It was hoped, too, that some method might be devised whereby interchangeability of devices could be perfected among the various railway systems.

Testimony had been presented in the hearing last spring, Mr. Borland said, indicating that safety in operation might be assured by methods other than train control devices. Railroads declared they had such methods under consideration. The commission intends to give the roads a chance to show what they can do, but it intends also to see to it that they do not overlook the work. Where train control appears to be the only thing needed, Mr. Borland said, the commission will require it. Where other methods are sufficient they will be permitted.

Chairman Stolz said in his address that in 1895 the late G. M. Basford, speaking to the first meeting of the Railway Signal Club, had said the purpose of that organization was to begin a systematic movement for the improvement of signalling so that this country might be at the head instead of at the bottom of the list in the destruction of life and property.

"We believe," said Mr. Stolz, "that the development and improvement made during the last 34 years, through the efforts of this organization, have produced a system of signaling that is second to none in the world. It is estimated that an engineman operating on the average American railroad equipped with an automatic block signal system will encounter 25,000 signals displaying correct indications for every one that causes him to make an unnecessary stop. The ratio of correct indications to the number of false indications displayed is conservatively estimated at four million. The average engineman will not encounter a false indication in a lifetime of service (45 years), for it would require the collective life services of three enginemen or 135 years.

"The most recent records on safety show a marked reduction in passenger fatalities. Twenty years ago there were six times as many and ten years ago, three times as many passengers killed as in 1927, when there were but 88. Out of this 88 there were but 10 passengers killed through train accidents, a decrease of 69 as compared with 1926. Over 800 million passengers were carried during the year, so that the ratio was one fatality among about 10 million passengers. We believe that Mr. Basford's hope is being realized and that the development then begun has led to a system of complete signaling, which has, through the prevention of accidents, placed this country at the head of the list."

H. W. Lewis of Bethlehem, Pa., signal engineer for the Lehigh Valley, was elected chairman of the section in the final session, March 5. Other officers elected were: First vice chairman, P. M. Gault, signal engineer, Missouri Pacific, St. Louis; second vice chairman, A. H. Rice, signal engineer, Delaware & Hudson, Albany; secretary, H. S. Balliet, special engineer, New York Central, New York.

On the Cover

The gentleman shown on the cover, this month, is used as symbolical of engineering as a compliment to the great convention at Chicago participated in by a thousand or more of the members of that profession. In connection with the exhibit of surveying instruments used in the Cascade tunnel project, the last three years, shown by the Great Northern Railway at the Palmer House, it is interesting to know that the instrument in this cover picture was a part of that collection. Out of consideration for the gentleman's modesty his name is withheld.

Railroads Should Own Motor Transport

By

Frank R. Fageol

Pres. Twin Coach Corpn.

Frank R. Fageol

I believe the railroads, without a doubt, will continue to be the big wholesalers of transportation. I look to see them control the best and the most necessary motor coach routes. This will be a boon to motor coach operation. Once the railroads with their efficient systems of check and maintenance have taken over many of these hastily organized operations, it will not only be a benefit to the public but also to the motor coach manufacturers.—*From Mr. Fageol's address.*

IN THE FALL of 1922 we introduced the first Fageol Safety Coach with its low center of gravity, parlor car type of body, with plate glass windows and air brakes. That job seemed to anticipate a demand of the traveling public, and I think I may say without being charged with immodesty, that this vehicle did as much to bring common carrier bus transportation as any other single cause.

What has happened in the last seven years? Statistics from a trustworthy source show there are today 719,250 bus route miles in the United States.

Slightly more than ten billion passenger miles were operated during 1928 by the common carrier buses. Per capita the country saw 84 miles of bus travel.

The industry collected $279,000,000 and five-eighths, or approximately $175,000,000 of this went to intercity carriers.

These carriers, as estimated, handled 5,535,000,000 passenger miles at an average fare of three cents a mile.

According to the February issue of the Missouri Pacific's house organ, since 1920 the passenger revenue of Class I roads has declined $312,000,000 yearly, or 25 per cent of the total passenger revenue in 1920.

We have assembled here today about 200 men representing the American steam railroad industry which has rail routes of about 250,000 miles, with an investment of about 14 times the alleged $550,000,000 investment in highway coach industry. The statistics show that the National Automobile Chamber of Commerce data sheets credit this industry with using only 1250 buses divided among 67 steam railroads. The year's statistics credit the steam railroad industry with a paltry 16,700 miles of bus routes, operated directly or through subsidiaries.

Even the American electric railways whose managers, when I was working on the first Fageol Safety Coach, looked upon motor coach operation with great antagonism. Now they are credited with operating more than 10,000 buses by 260 companies. Despite the frank admission of many of your executives that the motor coach and private automobile have stolen a great percentage of your short haul steam railroad traffic, why has there been such an apparent stagnation in the steam railroad field insofar as the adaptation of the motor coach is concerned? Let us try to analyze the reasons for this situation, the most impressive one to me as I look back over the eight years of American coach operation on the highways.

If all we Americans had looked upon transportation as a commodity years ago, I am not sure but that a

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This is part of an address delivered by Mr. Fageol, president of the Twin Coach Corpn., March 1, at St. Louis, before the Motor Transport Section of the American Railway Association.

Can't You See the Reclamation Workers of the Railroads Tearing This Pile Into Pieces if They Ever Controlled the Motor Industry?

lot of our transportation conflicts might have been ironed out. In my mind, transportation should have been looked upon as a general commodity with different brands like, horse, electric and steam transportation, just as there are potatoes, Irish, sweet and Idaho. The steam railroads looked upon the so-called steam rail transportation as their particular line of goods. The electric railways looked upon their electrically propelled rail transportation as their particular line of goods, and these ideas were accentuated because through certain circumstances both groups had what was to all intents and purposes a monopoly of that particular commodity. In the meantime, just as the average farm boy grew up and wandered away from home to learn there were other things than salt pork, so with the advent of a widened circle of activities, the American public discovered there were more modes of common transportation than steam and electric railroads.

Transportation, treated as a commodity, will explain many of the apparent difficulties of our passenger carrying businesses. The individual manufactured, first of all, his own transportation when he learned to walk. Tracing it down through history we find him cutting cart wheels out of tree trunks in order to make his first two-wheel drag, and then on along the line until we find somebody who learned transportation well enough to try to supply it for other people.

Of course, to provide consistent transportation there had to be a road of some kind, and it was the pioneers in the present great railroad organization who supplied the longest and most effective roads, the original steel railroads. As long as these steam railroads represented the flower of the roadways, our outlets available for this commodity called transportation, everything was fine, but as soon as our present hard surface roadways began to multiply into the millions of miles, the outlets for this commodity called transportation, and the demands for the various brands of it, became so great that the original powerful transportation group known as the steam railroad group seems to have lost its perspective, seems to have forgotten that its real purpose and charter should have been to supply transportation, not merely steam railroad transportation.

Do you not suppose things would have been much improved for the steam railroad systems had they, back in 1921 and '22, considered the orthodox system of group merchandising and applied it to transportation?

The steam railroads, in my opinion, should never forget that in the last analysis they really are jobbers of urban transportation. If they keep this thought in mind, and the companion thought that the motor bus has now become the wholesaler of transportation and the private automobile the retailer, I am sure the perspective from top to bottom in the steam railroad organization charts would go through considerable change. Until the advent of the motor bus the railroad was, really, both wholesaler and jobber, whereas now the motor bus, due to its greater convenience to the traveling public, is definitely robbing the railroad of its former position as wholesaler of transportation. The private automobile has cut more and more into this jobber and wholesaler group and has, perhaps, been the greatest factor in creating the motor bus as the wholesaler of transportation.

If the railroads are to retain this wholesale passenger transportation in the proper degree then they must go into motor bus business, and to a great extent discontinue local train service between neighboring cities and, in many cases, suburban train service in many of the larger centers, because the bus offers more frequent headway and a more convenient means from the public viewpoint.

With the proper perspective, it seems to me that the jobber and wholesaler, the steam railroad group, should have seen an entirely different frame around the tremendous expansion of highways in the United States, and should have looked upon them as so many more retail units capable of supplying still more wholesale business to them. By going into the bus business, the wholesale steam railroad set-up would simply have been establishing branches, as many other great mercantile concerns have done, to feed to itself as much of the increased business due to the expanded territory and increased human movement as should, logically, come to them.

If we eliminate or curtail the highways of this country, we greatly curtail the railroads of this country. Every vehicle which uses the highways, be it horse, private automobile, truck or motor bus, is a direct ally of and a help to the railroads because they are all going somewhere, or doing something which eventually, directly or indirectly, means business for the railroads.

The American public used to be content with strawberries, lettuce, tomatoes, etc., each for a limited number of weeks of the year. Today they want these former luxuries, which are almost year around necessities, month after month. Today the American family with an earning power of $2400 a year, instead of looking for a week-end excursion as its preceding generations did, may take it into its mind to travel 60 miles with only a couple of hours' planning. All of this brings the demand for frequency of headway in common carrier transportation which the steam railroad group never was set up to take care of, and can take care of

Truck and Trailers Operated by the British Columbia Rapid Transit Co. on Its Fraser Valley Motor Freight Line Into Vancouver.

only through wholesale branches which I should call motor bus subsidiaries.

Further, it seems to me that the idea of your systems treating transportation as a commodity is more or less confirmed by your present very extensive plans to assume aviation transportation responsibilities.

To those mechanical groups of your organization whose members have a distaste for getting into another technical brand of transportation, I wish to say a word of warning, that the sooner they expand their perspectives, the better for all concerned. In aviation they are going to encounter not only the heavier than air type of transportation, but the lighter than air, and I understand there is as much difference between them as there is between steam locomotives and motor bus engines.

The railroad personnel should recanvass its perspective of America's great highway efforts. If this country is to expand its prosperity, the highways must be extended and expanded at perhaps an even greater rate than heretofore.

During 1927 highway expenditures increased over $375,000,000 as against the highway expenditures of 1921, whereas special motor vehicle taxes increased over $390,000,000 in 1927 as against 1921. In my estimation, all reports to the contrary notwithstanding, the motor vehicle is more than meeting the costs of this increasing highway program.

I am looking forward with interest to big developments in motor bus operation through the steam railroads reported plans to secure control of, or substantial interest in many of the leading independent bus companies. With your resources and the benefit of the practical experience of those independent and courageous bus pioneers who have learned and built this great business under many handicaps, I predict the American nation will see an automotive type of common carrier transportation which will completely dwarf our present conception of it.

It is rather a surprise to most persons, but nevertheless an interesting fact, that of the $1,405,000,000 spent on highways in 1927 only $35,500,000 was paid by the railroads, or 2.4 per cent; in other words, less than 10 per cent of the total taxes paid by the railroads are used for highway purposes. In the past I think many of the rank and file of the railroads have been prejudiced and prevented from getting the proper grasp of motor bus development by their erroneous belief that the motor vehicle was not paying its way.

I believe the railroads, without a doubt, will continue to be the big wholesalers of transportation. I look to see them control the best and the most necessary motor coach routes. This will be a boon to motor coach operation. Once the railroads, with their efficient systems of check and maintenance, have taken over many of these hastily organized operations, it will not only be a benefit to the public but also to the motor coach manufacturers.

A Twin Coach In Cleveland.

The industrial and commercial development of the Middle West is indicated by population statistics for the fifteen leading cities on the Illinois Central System. In 1850, before the railroad was organized, only nine of these cities existed, and their aggregate population was 299,000. Today these fifteen cities have an aggregate population of more than 6,000,000.

The orchards of Illinois supplied 1,968 carloads of apples to forty large markets in 1927. The distribution extended as far east as Boston, Mass., as far south as Tampa, Fla., and New Orleans, La., and as far west as Denver, Colo., and San Antonio, Texas. Chicago took 829 carloads.

I extend pity to no man because he has to work. If he is worth his salt, he will work. I envy the man who has work worth doing and does it well. There never has been devised, and there never will be devised, any law which will enable a man to succeed save by the exercise of those qualities which have always been the prerequisites of success, the qualities of hard work, of keen intelligence, of unflinching will. — *Theodore Roosevelt.*

It is a wise man who knows his own business, and it is a wiser man who thoroughly attends to it.—*H. L. Wayland.*

A man should never be ashamed to own he has been in the wrong, which is but saying, in other words, that he is wiser today than he was yesterday. —*Pope.*

More Than Luck in These Stars

By Charles N. Tunnell

THERE may be such things as lucky stars, but it takes more than luck to win a gold star from the Houston Electric Company, it takes a full year's operation of an interurban, street car or motor bus without an accident. And this is one of the reasons adding particular interest to one of the best accident records of the country during the last few years.

"You can give the driver or motorman the best of equipment with all the latest and improved safety devices; but the secret of safety is in the operator himself. Proof of this fact is shown in modern automobiles. It is not the 'Old Wrecks' that are always in the smash-ups," says Carl B. Frazer, superintendent of traffic for this Texas company. "A man is mentally and physically able to work without accidents, or he is not," he declares. "If he is not able to do this, we try to determine the fact before hiring him or at least during the 'breaking-in' period. If he is mentally and physically able to operate a car without mishap, it is just a matter of stimulating the personal desire and pride in setting up a non-accident record."

To stimulate more interest in safety, to instruct and advise in better operation of buses and cars, and to form closer personal association with operators are the reasons why educational classes are held six times weekly by this company. These classes are under the direction of an educational director assisted by department heads. With about 425 drivers and motormen, 70 of them bus operators, this number is broken into four divisions.

Twenty men are brought daily from any or all divisions for the special training class in the school room. This group of 20 is drawn from the four divisions and from operators on duty. As the men are paid for time in classes, more enthusiasm and cooperation has been obtained. As the groups are formed from men just as they can be obtained, there is no special day for operators, but the law of averages brings every driver or motorman into the class period once a month or oftener.

Following the address by some department head, comes a round table discussion by the employes themselves. One details a particular situation experienced on the line recently, while others tell how they would have handled the situation or others similar. In this way, all operators get the daily experiences of 20 brother operators monthly, while following meettings will place him in contact with new associates.

Regardless of whether it is in the school room, at the car barn, on duty or off duty, every official of the Houston Electric Co. and every de-

A Ford, A Wet Pavement, and A Skid Against the Curb.

partment head works to impress every employe, from the track oiler to the operators, that he, the employe, is a big part of the company, and that his individual effort builds better public sentiment, which in turn builds more patronage and profits for the concern to make his own job more secure and profitable merely through the daily practice of safety measures. "And it is this actual daily effort of operators that count in the establishment of a better record and the payment of claims," says Frazer. "It's just like a prize fighter training for a big fight. It's the daily habits he forms to make him strong enough to win a title, and not merely a daily work-out in the ring or in the school room with no thought for the other hours of the day that make a champion fighter or a champion street railway operator."

To make it more convincing to operators that their safety records are appreciated and worth working for, a bonus of five dollars is paid monthly to the drivers and motormen that go for the month with no chargeable accident. The loss of the monthly bonus by an operator compels him to set a new record of two successive months without accident before he is entitled to a bonus for his third month of no accidents.

Every unusual occurrence, whether it is a rock crashed through the window by a boy or a collision, must be reported by the operator in this street railway system. The former would not be charged to him, but all accidents that could have been prevented by due care and judgment are charged to the operator.

During the last year, the Houston Electric Co. has required a thorough physical examination of all bus and car operators. It is found that operators often have defective hearing, seeing, high blood pressure, bad tonsils, and similar things creeping upon them without their being aware of it. The examination allows the specialists to correct these physical defects with little trouble and make the man better fitted for his duties with no accidents. In several instances where operators had defects and long service records, they were pensioned and taken from active service.

The services of this clinic are obtained through a regular monthly payment from an association formed and controlled by officers elected from and by operators. Every operator deposits one dollar a month for his medical association fee, while the company matches dollar for dollar put up by employes.

Club rooms and a recreation building for employes off duty is another way that this institution builds good will, and hence, good accident records from appreciative employes.

The Houston Electric Co., or any other, will never establish a perfect record of no accidents, but in order to approach closely the Nth degree of safety, the four divisions are divided into four teams each, a total of 16 teams. Every month that one of these teams sets up a new low accident record, one that has never been attained by any team, a banquet or outing is given the winning team. Naturally, the records are harder to make, and as a result, the company has reduced claims and promoted better public appreciation from its safety standpoint.

As an individual inducement to operators, a gold star is given operators who work a full year with no chargeable accidents. This reward for merit has been in force for eight years. Many of the men proudly display five and six stars on their caps, while a few are wearing eight.

Valor consists in the power of self recovery.—*Emerson.*

Wise men say nothing in dangerous times.—*Seiden.*

Content thyself to be obscurely good.—*Addison.*

Port Costa Train Ferry Is Doomed

Bridge to Cost $12,000,000

By C. R. Harding

S. P. Co. Engr. of Standards

THE Southern Pacific is building a double track $12,000,000 bridge across Suisun Bay to replace its train ferry between Port Costa and Benicia, Cal. Trains between Oakland and Sacramento have been ferried across the straits of Carquinez, about 30 miles northeast of San Francisco, since 1879. The Straits of Carquinez connect Suisun Bay and San Pablo Bay, and form the outlet for the Sacramento and San Joaquin Rivers which drain the great central valleys of California.

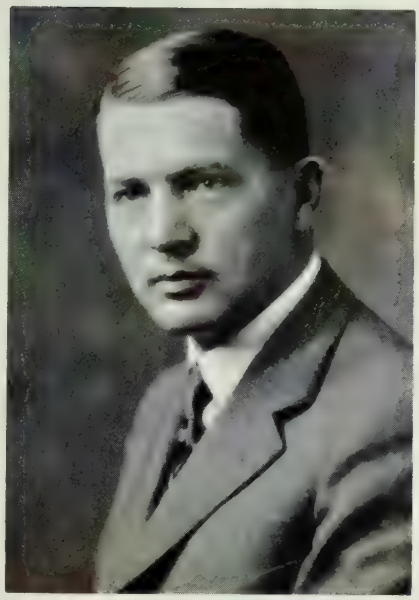
The bridge across Suisun Bay that will replace the train ferry is some two miles farther east, and crosses from Suisun Point, within the limits of the City of Martinez, to Army Point.

The navigable channel passing into and through Suisun Bay begins at this point, so that there is no need for sea-going steamships to pass the bridge except at the one point entering the channel. This avoids the need of a very high bridge that would pass ocean steamships anywhere, as would naturally have to be provided by any crossing of Carquinez Straits, the entire width of which is composed of deep water.

The north approach on the Benicia side, Goodyear to Army Point, consists of divergent double track, the westbound track approaching the bridge on a .45 per cent grade, compensated for curvature, with 3 degrees maximum curvature except immediately adjacent to the bridge where slower movement of trains permits a 4 degree curve. This will allow use of the same power as at present between Oakland and Sacramento as the existing ruling grade is .41 per cent.

The eastbound track leaves the north end of the bridge on a 4 degree curve on the side of a bluff and descends on a 2.2 per cent grade, compensated for curvature, to the level of the present tracks with which it connects.

At the south approach, conditions are not so favorable. It would have been desirable to have a .45 per cent ascending grade from the south, but that is impossible because of the nearness of improved property in the City of Martinez. The ruling grade of the south approach, therefore, will be 1 per cent, compensated, with 3 degrees maximum curvature.



C. R. Harding
S. P. Engineer of Standards

A 14 car passenger train, brought to a stop by signal governing approach to the movable span, cannot start on a 1 per cent grade, using the same power as at present. In order to overcome this, a .6 per cent grade has been introduced immediately ahead of the signal of sufficient length so that a 14 car passenger train may start without any difficulty. It will be necessary to use a helper engine for tonnage freight trains on this 1 per cent grade, but this is not so objectionable on the south side as it would have been on the north side because extensive switching service is now required to serve the large industries of Martinez.

Suisun Bay bridge will afford 70 feet underclearance for substantially its entire length, which is sufficient to pass river steamboats, barge tows, tugboats, and the like. A lift span at the channel, will accommodate the larger vessels, giving 300 feet horizontal clearance and 135 feet vertical clearance above mean high water. The 526 foot fixed spans, affording 70 feet underclearance, are somewhat longer than the economic span length, to make provision for long barge tows whose tailing distance in times of unfavorable conditions might cause them to run afoul of the piers with shorter spans.

For spans as great as 526 feet, the influence of live load becomes very important. Bridges designed 40 years ago for the power then used, when refigured for modern loads, are found to be overstressed more in certain of their members than in others. At the point where the bridge is loaded to the limit of its safety, it is desirable that all its members be stressed to equal percentages of their ultimate strengths. Therefore, it was decided to design for Cooper's E-90 locomotives, followed and preceded by a uniform load of 7,500 pounds per lineal foot of track, with unit stresses one-third higher than usually used. By this method, the bridge will vary but slightly in weight from one designed for our standard loading of E-60, but there will be a considerable difference in the distribution of metal in the various members. When this bridge is called upon to carry loads about 50 per cent greater than at present, none of its members will be overstressed more than any other, nor beyond the limits of safety.

Silicon steel will be used for all members fabricated from shapes, and tension members will be composed of heat-treated eyebars. The estimated weight of steel is 42,000,000 pounds.

The borings show rock to be on an average of about 120 feet below low water. The piers will rest upon bed rock, and the deepest one will be sunk to 143 feet below low water. It will be 214½ feet high from bottom of pier to top of coping. The base will be 38 feet by 60 feet. It will be sunk by the open dredging method. All of the piers will be heavily reinforced to resist earth-

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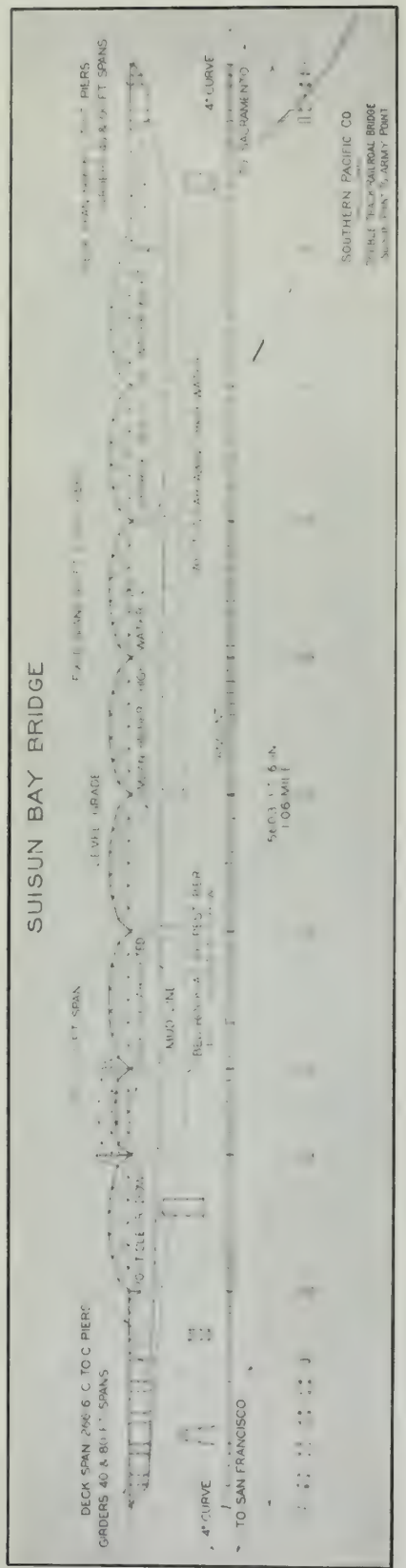
A paper read before the convention of the American Railway Engineering Association at Chicago, March 6.



quake shocks which are sure to be felt during the life of the bridge. Calculations indicate that the reinforcement planned will render the piers safe against earthquake shocks several times as intense as those of the San Francisco quake of 1906. Total amount of concrete to be used in the bridge will be 120,500 cubic yards.

In 50 Years the Port Costa Ferry Has Carried Millions of Passengers and Mountains of Freight Across the Straits of Carquinez for the Southern Pacific. The Boats Will be Retired When the Big Bridge Has Been Finished Over Suisun Bay.

The primary reason for construction of the bridge at this time is that the two existing car ferries have about reached the end of their lives and their maintenance cost is far too high. Passenger cars handled have increased from 72,000 in 1911 to 93,000 in 1926, an increase of 30 per cent in 15 years. Freight cars handled increased from 94,000 in 1911 to 142,000 in 1926, an increase of 52 per cent. The average time required to ferry a passenger train across the Straits is 30 minutes. Considering the added length of line and the restricted speed, it is estimated that passenger train schedules via the bridge will be reduced 10 minutes, with the very great advantage that train schedules will not be disrupted by frequent delays at the train ferry. The actual time saved probably will average 30 minutes because in the course of a year, about one day in every three, there are delays due to fog.

The saving in time of crossing of freight trains will be far greater. It now takes about two and a half hours to ferry a freight train, and freight train schedules via the bridge should be about two hours less. Construction has just about begun, and it is expected that the bridge will be in operation in the fall of 1931.

Transportation Back East

Eleven yoke of oxen passed through North Strafford, N. H., on their way to the Pittsfield fair. It was the longest line of oxen seen in North Strafford for more than twenty-nine years.

Five O'Clock on Hill Street

"Will you please drive off the track?" asked the Pacific Electric motorman.

The truck driver promptly pulled to one side.

"Thank you, ever so much," said the motorman with a smile.

"You're very welcome," responded the truck driver, "but you must pardon my seeming carelessness; I had no idea your car was so near."

Time Table Time

The man in a hurry to catch his train was worried by the station clock. There was 20 minutes difference between the one in the ticket office and the one in the waiting room. Finally he questioned the porter who made a careful survey of both clocks and shook his head doubtfully, then he said suddenly, "It don't make a bit of difference about them clocks the train goes at 4:10 anyhow."

It Seems There Was An Irishman

Pat Murphy was taking his first flight in an airplane. When up about 3,000 feet, the plane suddenly went into a nose-dive.

"Ha, ha!" laughed the pilot, shouting to Pat. "Fifty per cent of the people down there thought we were falling."

"Yes," said Pat, "and 50 per cent of the people up here thought so, too."—*Stratford Beacon Herald.*

Editorial Comment

The Human Side and the Engineers

PRESIDENT Aishton of the American Railway Assn. writes interestingly in this edition about the human side of railroading. Ernest Chamberlin describes the marvelous growth of Oklahoma City which stands today, a city of 140,000 popluation, on ground over which cattle and buffalo roamed only 30 years ago. Without railroads, and later, without the other forms of speedy and efficient transportation which science and brains have produced such astonishing development would have been impossible. The particularly pleasing feature of Mr. Chamberlain's article is his declaration that the citizens of this growing midwest center have shown their sincere appreciation of the benefits transportation has bestowed upon them.

In all this change from the covered wagon and Indians to modern living standards and the blessings of civilization the engineers have taken a leading part. At every turn their constructive work is apparent. No other profession has done so much for the country. Without the railroads cities would be impossible; without the engineers no railroads could be built.

Hoover and Government Ownership

It is to be hoped the railroad managers of the country, and that element which seems to thrive upon unrest, may find somewhat interesting that part of President Hoover's inaugural address given over to a brief declaration about government in business.

"The election," said the President, "has again confirmed the determination of the American people that regulation of private enterprise and not government ownership or operation is the course rightly to be pursued in our relation to business. * * * * Such regulation should be extended by the federal government within the limitations of the Constitution and only when the individual states are without power to protect their citizens through their own authority."

Farther along the President said he would fearlessly insist upon the continuance of economy in public expenditure; the continued regulation of business to prevent domination in the community; and the denial of ownership or operation of business by the government in competition with its citizens.

"The denial of ownership or operation of business by the government in competition with its citizens," seems rather fairly responsive to the belief that President Hoover might immediately insist upon increasing the present waterways enterprises of the federal government. At all events it is language worth studying.

The Elusive Mr. James

It seems to be rather clearly understood that the Great Northern Ry. is headed for California. If reports now so widely circulated are confirmed the possibilities of development on the West Coast seem endless. To give the rumors an atmosphere of truthfulness one notes the presence of numerous Great Northern officials in conference with H. M. Adams, president of the Western Pacific. About the same time the affable Mr. James shows up—Arthur Curtiss James—and when this happens almost anything may be expected. The Western Pacific hopes to extend into Southern Pacific territory and that company, quite naturally objects. The Great Northern is said to be making eyes at the Santa Fe System hoping to tap the producing and consuming fields of Southern California, Arizona and West Texas. Approach the officials of any of these companies, however, and they appear too much astonished for words and declare, shyly that, so far as they know, there just isn't a thing to the story.

Still, there sits Arthur Curtiss James, principal owner of almost anything in sight, smiling, pleasant, absolutely unaware that anything is going on, except taxes and interest. You chat about the Great Northern and the Western Pacific, and someone reminds you that Mr. James is the power in both. How about the Northern Pacific? Mr. James. The Burlington? Arthur Curtiss James if you please. Extremely confusing.

One thing at least is certain. Whatever the plans may be they will be disclosed publicly when the Interstate Commerce Commission receives them next month. After this happens a long dry spell may be expected. If President Hoover insists on a bit more speed as did Mr. Coolidge the commission may give its decision early in the spring of 1930. Railroad officials not by any means unfriendly to the commission do not expect a decision any sooner. And this does not seem so unreasonable when one remembers the number of projects, consolidations, invasions of territory, new construction proposed,

not forgetting the minority stockholders,—all involved in the plans now forming the subject of conversation wherever railroad men gather.

At all events it does seem reasonable to assume that railroads are about to put forth another spurt. If motor vehicles and air transports are trying to start something it seems more than likely that they will not find railroad managers sleeping.

More of the Human Element

No more inspiring proof of the forward-looking attitude of the men managing great railroad properties has become public in recent years than the work of the Delaware & Hudson with its summer camps for engineering students, described in this magazine last month in an article by J. T. Loree, vice president and general manager for that old time company. Now comes the account of Boy Scout work done by the Chicago, Milwaukee, St. Paul & Pacific, authorized by the president, H. A. Scandrett. At a banquet given in Chicago and attended by the principal National Boy Scout executives, leading business men, and officials of the Milwaukee road, twelve boys in full scout uniform marched to the speakers' table, said they represented the twelve states in which the Milwaukee has been instrumental in Boy Scout troop organization work, and voiced their appreciation of the activities of this railroad in their behalf. These boys were led by Scout James Nordness of Middleton, Wis., Troop 266, one of the first troops organized by this railroad. The toastmaster, Gen. Leroy T. Steward, acknowledged this tribute from the boys, spoke of the significance of railroad participation in scout development work and called on General Solicitor Dynes of the Milwaukee who responded for the railroad, saying, among other interesting things, that the Milwaukee road's interest in scout work is not altruistic but a far-sighted business policy, as the road has over 50,000 workers in the 1500 communities served by its 11,000 miles of line and will always be recruiting its employes from the youth of the country. The young man who has had Boy Scout training, Mr. Dynes said, will be courteous in his relations with the public and his fellow workers; will be watchful and resourceful in prevention of accidents, and will exert a moral influence certain to improve the morale of the railroad organization.

Much Like Railroad Tariffs

George Kindel of Denver, former congressman from Colorado, had some calendars for 1929 to mail to his friends in various parts of the United States and abroad. Now he can't sleep for worrying over the postage rates. "The Denver postoffice," says Mr. Kindel in a letter over-weight with gloom, "charged me 12 cents to transport this calendar to Lakeland, Fla. But to send a copy, same make, same weight, to Germany the charge was only eight cents. This is almost as sensible as our parcels post rates. Suppose I wish to ship 100 pounds of something, in two parcels of 50 pounds each, from Denver to Lincoln, Neb. I should address the packages first to Kearney, Neb., and then re-mail them to Lincoln, and the charge would be 86 cents less than if sent direct from Denver to Lincoln."

It has been quite generally admitted everywhere that no man on earth really understands a railroad tariff and its reasons, if any. But these tariffs are simplicity itself when compared with postal rates. If an air mail letter is a trifle too heavy for the five-cent rate it costs ten cents more, or 15 cents in all to get it across the country. Put the papers in two envelopes and they are gladly carried for a dime.

The State's First Citizen

Since Paul Shoup became president of the Southern Pacific, January 1, he has been dined and—well,—dined, and acclaimed up and down the Pacific Coast by business men of all degrees and by civic organizations and public officials everywhere until, perhaps, he now recognizes himself, modest as he is known to be, as the glorified gentleman described by the toastmasters in their oratorical flights. The latest outburst of public delight over the promotion of San Bernardino's favorite native son took place the evening of March 8 when most of Southern California's business and railroad interests joined in a remarkable demonstration in the gold room of the Biltmore at Los Angeles. Eight hundred guests, every one of them in his split-second coat and uncomfortable collar, were present from everywhere on the West Coast. Even San Francisco participated.

It was a joyous occasion, thanks to the committee's felicitous choice of speakers and varied entertainment. Not a sob was heard, and if an undertaker was there he kept silent. Not a lily, not a tube rose; nothing but cheers for the man who had worked his way up over a route not always pleasant and easy, from baggage hustler to president of one of the nation's five roads rated at more than a billion dollars in value. If any regret at all might be expressed it is that the story of Mr. Shoup's fine career can not be known to every American boy to teach him that, in this land of the brave and more-or-less free, Opportunity with a capital O still is looking for material of the right kind. The fact that in this great country many a mighty executive toiled along over a highway as rough as Paul Shoup faced year after year on his way to the top, makes the example none the less valuable and encouraging. Every boy has his chance, but not all of them are gifted with in-

telligence to know when it comes along. One of the world's great poets, great because he sang of human things, once declared,

> There are chances a-plenty,
> Right here at your finger tips,
> Day after day.
> For each opportunity seized
> There are twenty
> Overlooked and permitted.
> To wander away.

If Paul Shoup overlooked any chances to do his work and make himself ready for the Big Day when it might come, no one ever has heard about it. "P. S.," as he is known affectionately and officially in the land where he has lived since boyhood, must have felt a thrill that paid him for every disappointment and every hour of labor, when Maynard McFie, past president of the Los Angeles Chamber of Commerce, called him the state's first citizen.

That he has not permitted the burdens of business to warp his affability was shown in Mr. Shoup's sparkling humor in replying to all the very handsome tributes paid him. It was thoroughly characteristic of the man that in this reply he gave full credit to the army of 75,000 men and women who have contributed by their loyal cooperation to the very fine results the Southern Pacific Company has been able to record in the public service.

There were some very accomplished singers on duty at the dinner, professionals who knew their operas, but it was left for an old time classic to charm the 800 out of their seats. Everyone, it seemed, knew the song: "I've been working on the railroad." Everyone sang it, Mr. Shoup included. No one could resist it. Indeed, as Mr. Shoup would have phrased it in his reporting days, long years ago, "A good time was had by all."

"Including the Advertisements"

A great many letters received by this magazine from admiring readers contain the assurance that everything in the book is read, "including the advertisements." All editors like to receive such evidences of good will, and certainly they are grateful because, ordinarily, they hear nothing until they misspell someone's name or slip slightly in handling some of the 389 subjects they are supposed to understand thoroughly.

When readers write friendly letters to a magazine it is because they wish to be helpful. But practically all such writers overlook one obvious fact: Of course they read the advertising; if they didn't read it, if the whole world disregarded it there would be few magazines or newspapers. No matter how interesting the magazine's articles may be they can not, usually, compare in news value or in importance of industrial development with the announcements of the advertisers. It would be a fine idea if all the well-meaning letter writers would take the trouble to tell the advertisers that their display pages had been read and appreciated. This is done so infrequently that the advertiser is obliged to resort to a trick key letter or figure in his business address to discover where his advertisement had been read.

The editor is convulsed with happiness when letters come confirming his judgment of reading matter, but the men who pay for the advertising and thus make the magazine possible, would be joyous beyond words if readers would remember their part in the constructive effort. Don't neglect to tell the manufacturer where you saw his ad when you buy a locomotive for the home.

By the Way—

Sales of incandescent lamps in the United States during 1928 were approximately 319,000,000 large and 240,000,000 small lamps, according to a review of the electrical industry for the year by John Liston of the General Electric Company. This is an increase of about 1,500,000 in the large sizes over 1927, and 20,500,000 in the small sizes over the previous year.

It is indeed an age of speed. Air mail that left San Francisco March 5 by the Boeing route was deposited in Chicago 12 hours and 43 minues later, constituting a new record, it was announced by W. G. Herron, vice president, in charge of the traffic. The previous record was slightly more than 16 hours.

The planes carrying the mail averaged 165.4 miles an hour over the 1942-mile route.

"The Reign of the House of Rothschild," Count Corti's wonderfully interesting book contains much reading for railroad men. The first chapters of the big volume describe the part this great Jewish family played in financing the world's first railways in Europe. That the Rothschilds could be induced to put millions into the new form of transportation at a time when many so-called great minds, scientific experts, statesmen were violently opposed to such a project, speaks much for the foresight of these great traders. By all means read Corti's book if you wish to know the history of the industry in which you find a living.

Bus traffic in South Africa is becoming so strong that the railway administration of the government is deeply concerned, and laws to stop the competition are being discussed. In some suburban districts the people are deserting the railroads for the buses to such an extent that there is little business for the rail lines. The Port Elizabeth-Walmer branch has already been discontinued, and deaths of two other suburban lines in the Cape Province are expected.

Not only are passengers preferring buses, but freight is being diverted to the highway lines.

A unique feature of the Hamburg postal system is the use of street car mail boxes. Every street car passing the main railway station has a mail box attached to the rear. When the cars reach the station, special postmen stationed at the street car stops collect the mail, which is then immediately taken to the railway postoffice substation, distributed, and put on the first outgoing mail train. Anyone wishing to expedite a letter may, for the nominal charge of five pfennigs (a little over one cent) utilize this method and be assured that the letter will be posted by the first available train. As far as known there are only two other European cities using such a system. Amsterdam and Stockholm.

We write or speak frequently about changed standards of living, marvels of this, that or the other thing. What, for example, would have been your reaction, a few years ago, if you had read this little advertisement in the morning paper?

Just completed, two-story stucco of exceptional design, three bedrms., two baths, double garage, on 50-ft. lot, within five minutes of three large motion picture studios and 10 minutes of eight airports.

Every railroad man should read "The Railroads Versus the Waterways," an article in the current issue of the Review of Reviews by E. E. Loomis, president of the Lehigh Valley Railroad. The more you read of such articles the more valuable you will be to your employers because you will know more about the company's business.

The president of the Kansas City Southern Railway sent a perfectly wonderful letter and a pass to a railroad man not long ago. The president hoped the traveler would enjoy the Kindly Courteous Service of the road. When the story was told it went out anonymously. Anyone except an editor might have known that the capitalized words formed the slogan of this line to the Gulf, but the yarn got by and was, by implication, credited to another road. Of course the watch-dog of the Kansas City Southern, J. F. Holden, caught it, and what he wrote is responsible for this explanation. We wish it understood that Kindly Courteous Service was the one slogan of all the scores used by Class 1 roads that we had not treasured among our literary souvenirs.

Competition That Kills

A price war among the producers and dealers in gasoline on the Pacific Coast has resulted, in the last 30 days, in the closing of hundreds of small service stations. From a rather uniform scale of five gallons for a dollar the market fell to eight or ten cents, and in many instances to seven and even five cents a gallon, prices at which no man could survive in business. Owners of motor vehicles, of course, have taken advantage of the war to buy all the gasoline they could put into storage, notwithstanding its possible shrinkage of at least ten per cent.

The effects of a price war in a commodity so much in demand as gasoline are felt in many ways outside the offices of producers and dealers. Property is vacated, rent remains unpaid, thousands of men are thrown out of employment, and society, that indefinite element about which so little is understood, is left to absorb the idle. Indeed the final shock will be felt in many branches of business from groceries to department stores, and in every form of commerce in which credit plays an important part. Ultimately, of course, the winners in this struggle will raise the price to whatever point the traffic will bear, and just what this may be no one knows. In this case, at all events, competition is not proving to be the life of trade.

Present-day governmental regulation of railroads and other public utilities grew out of public resentment stirred by long abuse. Old railroad men know this. The owners of the oil industry seem to forget that if this government can set the price at which railroads shall serve the public—and it does this through the Interstate Commerce Commission—if it can find Constitutional authority for taking from the railroads a part of their earnings, as it does under the Transportation Act, it certainly can regulate the oil business and say what it may charge for its commodity. Moreover, it should be remembered that gasoline has become a public necessity, and the law may give it that classification one of these days. Any keen lawyer knows that practically anything can be read into the Constitution. If the government can limit the amount of alcohol in medicines and near-beer why may it not say how much water may be put into gasoline?

In the eight years from September 1, 1920, to September 1, 1928, the Class I steam railways and large switching and terminal companies in the United States failed to earn a "fair return" on their property investment by $2,897,036,186.

The "fair return" was fixed by the Interstate Commerce Commission under the provisions of the Transportation Act, at 6 per cent until March 1, 1922 , and at 5¾ per cent after March 1, 1922. It is based on the carriers' book investment in road and equipment, including materials and supplies and cash, at the beginning of each year.

If—as has been erroneously alleged many times—the railroads had a guarantee from the government, the government would now owe them this 2 billion 900 million dollars. Since the railroads have no guarantee, the government does not owe it. It has simply been lost by the railroads and by those who invest their savings in providing railroad facilities for the country.

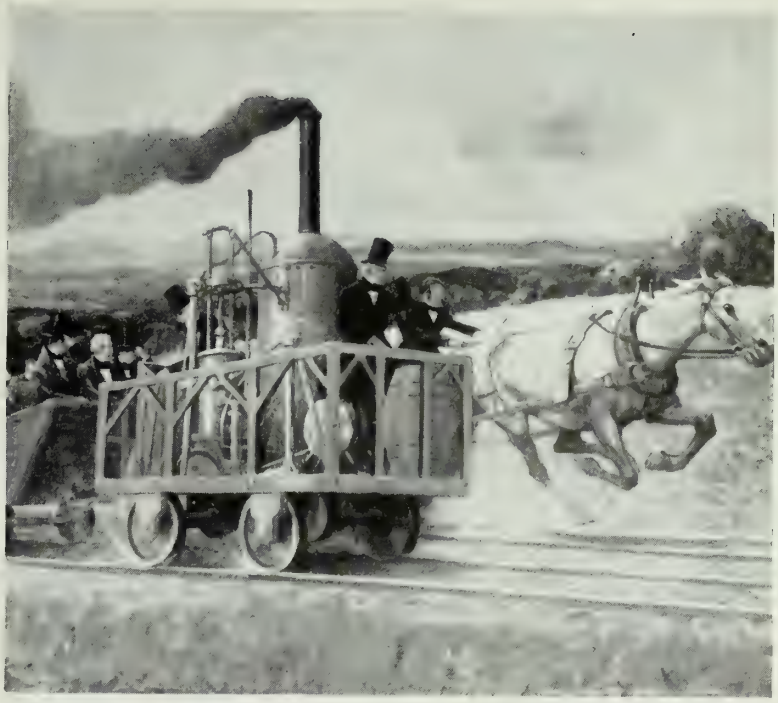
In the Days of Peter Cooper 100 Years Ago

The Human Element in Railroading

By

R. H. Aishton

President
American Railway Association



If the Blower Belt Hadn't Slipped That Day, August 28, 1830, and If Peter Cooper Hadn't Cut His Hand Trying to Fix It, the Tom Thumb Would Have Beaten the Horse, So Peter Said. Reproduced From Herbert D. Stitt's Painting for the Baltimore & Ohio Railroad.

ON THE twelfth day of May next the shade of a distinguished early American probably will look earthward at the many thousand trains moving over this continent, and will recall that fifty-four years ago he stood before a meeting of the Master Mechanics' Association, and said, in part:

A gentleman has just asked me to say something about a very little, insignificant locomotive which I made, I think, in the year 1829. You will see how insignificant it was when I tell you that the cylinder was only three inches in diameter, with a four-inch stroke.

I said to the president and a few of the directors who were principally interested that, if they would hold on, and not sacrifice their stock for a little while, I would make a small locomotive which, I thought, could pull a train around those short curves. When I got all ready I invited the directors to come and witness the start. Just then another little accident happened that I must tell you about. Some good-for-nothing fellow had run off with the copper pipes just for the old copper. I got them fixed, and again invited the directors to come and witness the start. That time I succeeded in getting off. You would think that so small a cylinder would not be able to do the work, and the boiler was only about as big as a flour barrel. It was a tubular boiler, with iron gun barrels for the tubes!

The safety valves would discharge the steam so rapidly that I thought all of the water would go out of the boiler. I could not conveniently alter the safety valves, and I knew that the boiler was strong, so I put my hand on them and held them down. Insignificant as that little engine was, we made the trip of thirteen miles in about an hour and twelve minutes, making all the short turns, and demonstrated the fact that a locomotive could be made which could go around those short curves, the thing that I set out to do.

And the master mechanics, as they crowded around to greet their honored guest with his 84 years and his imposing wreath of whiskers, realized as we do today, that besides describing the "Tom Thumb" locomotive, Peter Cooper unconsciously had epitomized the fundamental basis of railroading. That is, in every crisis some one man, or a group of men, have held on in spite of discouragements, have made persistent attempts in the face of failure, and have worked out the way to get around the curves, physical and psychological, regardless of who ran off with their "copper pipes." When tubes were lacking, they have utilized gun barrels, and when necessary, even, one of them has put his hand on the safety valves and held them down, so as to keep the machine from exploding with a loud noise.

Today, just a hundred years after the feat so simply and yet dramatically described by Peter Cooper, we may well pause to consider the part that man has played in railroad development in the United States. "Things never yet created things," wrote Kipling. "Once on a time there was a man," and to call the roll of railroaders who helped to create our 250,000 miles of railroads and all their equipment and their organization emphasizes that fact. To try to discuss them and their works adequately would take valuable time away from present-day transportation problems, but I do want to emphasize the one element that stands out in all their records; they were real men, they were proof against all discouragements, and they supplied to railroad development the vital factor of the human element in railroading.

Nor would the old timers thank us particularly if we took the time to eulogize them. They would rather we worked out, as they did, the way to get around the curves, even if it is

What Is There About This Picture to Remind You of Present-Day Railroading? Not Much Except the Shortage of Passengers.

now called, in high-brow phraseology, "studying the economics of operation." For they knew, as we know, that the most important element in railroading was and is the human element, the man in the lonely tower, the man in the cab, the man in the yards, the man in the general offices, the man walking the track, at any place and at all hours of the day and night; the man, organized to have

Interdependence absolute, foreseen, ordained, decreed,
To work, ye'll note, at any tilt an' every rate of speed.

And we might add, in any kind of weather, to the end that train after train may pull into the great terminals on time, and the passengers get off and go their ways; to the end that freight is unloaded and carried away, so that New Yorkers may eat Texas spinach and Mexican tomatoes in January, California and Florida fruits in February, and may enjoy the comforts of life at all times. This could not be done without railroad men, working individually and cooperatively.

We of 1929 are inclined to take this railroad organization for granted. Now and then, however, someone who appreciates the stupendous urge and effort and coordination behind our railroad transportation service, gets a chance to pay tribute to the pooled brains that make it possible, and takes off his hat to them. Again quoting from Kipling,

What I ha' seen since ocean-steam began
Leaves me na doot for the machine; but what about the man?
The man that counts, wi' all his runs.

Kipling was talking of steamships and ocean transportation, but his words apply equally to rail transport on land. What about the man? Without him our railroad plant and machinery would lie idle and rust down into piles of junk. Without him, the whole organization of our railway system would go to chaos over night.

I have often thought of the vital nature of the human element in other lines of effort as well. When looking down upon a street crowded with motor cars, especially at night, the eye takes in hundreds of dark vehicles, with no motive power or guiding force visible. But those vehicles are keeping in line, slowing down, starting again, turning and twisting, as if some monster mind were operating the whole mass. Yet there is no monster or master mind behind it all; merely a large number of individual minds in the several drivers' seats, each guiding his particular vehicle in coordination with every other vehicle in the mass, and all moving forward together.

Suppose five car drivers at different points in a traffic jam suddenly lost control of their cars, either through illness or death or mental aberration. What would happen? Five cars would crash into the cars ahead, and the whole mass would be thrown into instant confusion. The human element again, not always in view but always present, is the vital ingredient.

Organization is essential not only to railroading, but also to all forms of activity. Manufacturing plants, mercantile establishments, hotels, and all other commercial and social movements are successful in the degree to which the human element is fully organized and coordinated into a smoothly functioning machine. If this be true of any industrial activity, it is especially true of a railroad operation, which is carried on over wide areas and is so individualistic in many of its motions.

We hear a good deal nowdays about the "mechanical man" and about "Eric Robot", but I cannot conceive that mechanical devices ever will be developed that will replace more than a small proportion of the human element in railroading. I say this with all regard for the tremendous mechanical progress already made in railroad operation, a progress that is by no means at an end, but will continue as long as we have railways. It is with no idea of disparagement of mechanical progress, or of the pioneers in the inventive field, that I reiterate my belief that the human element transcends all others.

A friend remarked to me, not long ago, that he believed the human element to be at least 90 per cent of railroading. My first reaction to such a remark was one of scepticism, but

the longer I have thought over it, the more strongly I have realized the extent to which the energy and brains of men extend through every function of railroad operations. There is no way of measuring this percentage, any more than it is possible to apportion to each member of the human body a percentage representing its relative importance to the whole. But whether the proportion is 90 per cent, or 80, or more, or less, it is so substantial that we can scarcely overemphasize its vital nature. I am not so sure but what my friend was right.

So, as we survey the past and future of transportation in the United States, let us consider the millions of men who have contributed their lives, their brains, their energy, and their unswerving loyalty to the development and maintenance of an adequate system of railroads.

Many of these men have lived and worked in obscurity. Some have reached the highest positions and have attained renown. But high or low, they have supplied that indispensable factor to our railroad operations, without which all mechanical development would have been of no avail, and lacking which our rails today would indeed be "streaks of rust". They have in fact been the human element in railroading, that vital factor without which all other factors would utterly fail.

Around the Corner

By Charles Hanson Towne

Around the corner I have a friend
In this great city that has no end,
Yet days go by and weeks rush on
And before I know it a year is gone
And I never see my old friend's face
For life is a swift, a terrible race.
He knows I like him just as well
As in the days when I rang his bell
And he rang mine. We were younger then;
And now we are busy, tired men—
Tired with playing a foolish game,
Tired with trying to make a name.
"To-morrow," I say, "I'll call on Jim
Just to show that I think of him."
But to-morrow comes and to-morrow goes
And the distance between us grows and grows.
Around the corner! Yet miles away—
And then comes a message, "Jim died today."
And that's what we get, and deserve in the end—
Around the corner—a vanished friend.

An Honest Engineer

The hoghead was having his trouble getting over Oshkosh Hill and at the next station received a message from the superintendent, reading: "Why the delay on Oshkosh Hill?" The answer was short but plain—"Out of sand." At the next telegraph office he received another message: "What were you doing on Oshkosh Hill without sand?" The reply was still short, but full—"Slipping".—*Cooperative News.*

Fate With Impartial Hand

George Sias, a miner, was driving his automobile near Logan, W. Va., February 15. Swinging around a curve at a pretty fast speed Sias fell out, rolled down an embankment above a railroad track, and reached the bottom just in time to be cut in two by a freight train.

Illinois, with a smelter production of 103,000 tons of zinc in 1927, ranked second only to Oklahoma as a producer of this metal.

The first perishable fruit ever shipped under refrigeration by rail started from Cobden, a station on the Illinois Central System in southern Illinois. The shipment consisted of strawberries for the Chicago market.

—P&A Photo.

Except for the Ten-Gallon Hat, the Former President of the United States Seems to Fit Right Into This Old-Time Transportation. The Picture Was Taken Several Weeks Before the Inauguration of His Successor. Mr. Coolidge and His Host, Howard Coffin, Are Returning From a Day's Hunting Down South.

Some Queer Things in the News

Who Stole This Rumanian Railroad?

WORD CAME from Bucharest a few days ago that in pursuing his national house-cleaning campaign, Juliu Maniu, the new prime minister, has, according to the newspaper, Adevarul, discovered that an entire railroad, including tracks, rolling stock and signal system, has been stolen. The newspaper said that railroad inspectors of the old administration are blamed for the disappearance of the road.

The road was constructed by Austro-Hungarian engineers in war time from Cluj, Transylvania, to Jacobenia, Rumania. It is said to have cost almost $4,000,000. Apparently it was dismantled piece by piece and the parts sold secretly.

Flying Hearse Now Reality

Funeral processions by air are to be included in services offered by John J. Fox & Sons, Bronx undertakers. The concern, which says it is the first to use motor hearses in New York, has completed arrangements with Barrett Airways of Armonk, N. Y., to supply airplanes capable of carrying a coffin and an undertaker's assistant.

The new service is designed particularly for carrying bodies over long distances for burial. John J. Fox, Jr., said: "The day will come when there will be landing fields attached to many cemeteries."

Wyoming Citizens Buy a Railroad

From Saratoga, Wyo., comes a story about people who really appreciated a railroad. It is a new thriller with an old plot written into the successful struggle of the Platte valley residents who saved the Saratoga & Encampment Railroad from the junkman and their own towns and ranches from isolation.

They raised $100,000 to buy the 44 miles of roadbed and equipment, exercised their option on the last day of its life, and gave the road to the Union Pacific.

The valley dwellers said they needed the railroad to ship their cattle, sheep and hay. Its retention would insure the handling of lumber from the Hayden and Medicine Bow national forests. The probable development of the Saratoga reclamation project, now pending in congress, was another argument to stress the need for the road.

Fred Healey, Saratoga banker, headed a committee to raise the $100,000. A three per cent levy on assessed valuation was made. The last of the money was raised the day the option on the purchase expired.

Smokers in France on the War Path

Amid dense clouds of smoke and the fumes of beer and wine, the National League in Defense of Smokers has voted the first part of a lengthy program to establish the rights of smokers. Resolutions were adopted against the abolition of smoking cars; urging improvement of the quality of paper the government uses in cigarettes; introduction of a cheap pipe tobacco, and discontinuance of the mixture of strange ingredients in tobacco.

The conference was carried on in a congenial cafe with the greatest of seriousness.

Here's a "Well To Do Switchman"

William E. Boyle, well-to-do railway switchman, frankly told Judge Rosenkranz of Los Angeles that he would "rot in jail" before he paid any alimony to Mrs. Anna B. Boyle, who is suing him for divorce on the grounds of cruelty.

"I won't pay alimony and I have got the money. I'll rot in jail first," said Boyle.

"Well, that is just what you will do unless you pay $50 a month," said Judge Rosenkranz.

"Well, I won't pay," Boyle replied as he left the courtroom.

According to the records in the case the couple have been married for twenty-one years.

Pilot Loses Suit For Hitting Auto

The first damage suit resulting from a collision of an airplane and an automobile to be presented in a Chicago court was tried one day last month and the airplane lost.

The plaintiff, the Northern Assurance Company, Ltd., charged William Strine, an aviator, with damaging the automobile of Mrs. Zora Gehlert of Benton Harbor, Mich., by "recklessly propelling his airplane" so it alighted on the automobile which she was driving.

Strine and a companion were injured in the accident. A judgment for $131.34 was rendered.

The Idea! A Railroad Gossip

The Missouri Pacific has been made defendant in an alienation of affection suit for $100,000 filed by C. O. McInturff, fireman, of Claremont, Okla. McInturff charges company officials falsely told his wife he had obtained passes for the transportation of other women from Claremont to Kansas City.

Now a Motorman Gets a Ticket

Although Traffic Officer Stedman of Santa Monica couldn't very well insist that the Pacific Electric motorman he arrested should "pull over to the curb," he provided the trainman with tickets for speeding and failure to observe a boulevard stop just the same as he has often done for motorists.

The Husband Should Worry

A new trial was granted in the case of Mrs. Charles Veitch vs. the Southern Railroad last month by Judge Thomas E. Knight in a ruling in which he declared damages to the amount of $3,000 awarded Mrs. Veitch by a Perry county jury in Marion to be excessive. He named $1,250 as fair damages. The case grew out of the shipment of the body of Mrs. Veitch's husband. Testimony showed that the body, sent from Marion, was returned there by mistake later instead of being sent on to Birmingham, delaying the funeral 24 hours.

Little Stories About Big Men

Colonel Robert P. Lamont
Secretary of Commerce

MEN WHO have known him for many years were not at all surprised when Herbert Hoover, himself an engineer of international renown, chose a member of that profession for the post of secretary of commerce, Colonel Robert Patterson Lamont of Chicago. The appointment was joyously received by the important men of the nation, not only because Colonel Lamont is especially well fitted to handle the very important duties pertaining to the position, but chiefly for the reason that he has never been an office seeker; and still further because it was quite apparent that the President had selected him without regard to political affiliations. It is extremely doubtful, indeed, whether Mr. Hoover has ever thought much about whether the colonel is a Republican or a Democrat, although he is a Republican. The post he had in mind for him needed the services of a man big mentally as well as physically. However, the matter of politics did crop up in an amusing way in a Los Angeles club where a group of engineers stood talking of the appointment. "Of course it should be understood," said a white-haired man, smilingly, "that there are just as good engineers in the Democratic party as in any other." This was courteously accepted as a probability. "But," said another of the group, "you will admit, I hope, that nothing has happened in recent years to support your theory."

To be secretary of commerce means to make world contacts, to do many things of international significance, of overwhelming importance to the trade of the United States. During the Hoover regime the department expanded marvelously and grew in usefulness far beyond anything believed possible in other years. The man deemed fit for such a job must have been scrutinized rather carefully. He must be tactful, diplomatic, careful of his words; he must have a world understanding, as Hoover had. He must know what should be done in a certain circumstance, and he must know how to do it. More important still he should know how to direct others, and this quality, quite naturally, comes only after long experience in handling big affairs involving the labors of many men.

It might well be expected that the President would look for an engineer. You have only to read Colonel Lamont's fine record to understand the reasons for his selection. For twenty years he has been an officer of the American Steel Foundries and has been president of that corporation since 1912. He also is chairman of the board of the Griffin Wheel Co. and a director of the First National Bank, Armour & Co., American Radiator Co., Dodge Bros., the International Harvester Co., Montgomery Ward & Co., the Illinois Bell Telephone Co. and the Chicago Daily News Co. During the World War he rose to the rank of colonel in the ordnance division, becoming chief of the division of procurement, and congress awarded him the distinguished service medal. Colonel Lamont is a trustee of the University of Chicago, of the Art Institute, and of the Rosenwald industrial museum besides being president of St. Luke's hospital. He has been active in scientific research in many different fields, being chiefly instrumental in establishing the astronomical observatory of the University of Michigan in South Africa, the most important south of the equator.

Colonel Lamont was born in Detroit, Mich., on Dec. 1, 1867. Graduating from the engineering department of the University of Michigan in 1891, he went to Chicago, where three years later he married Helen Gertrude Trotter. His first job was as an engineer at the Chicago World's Fair of 1893.

Beatty of the C. P. R.

ANYONE who has seen Edward W. Beatty, president of the Canadian Pacific Railway, dressed for the street knows that he always wears his hat tilted over one eye in a rakish, hail-fellow-well-met sort of a way. It is a characteristic of his, and there is a story in it.

Back in the days when Mr. Beatty was sawing a lot of wood as general counsel of the C. P. R., he didn't have much time or inclination, for that matter, to say much. Outside of court or legislative hearings, he rarely had a word for publication. Because of this, he realized he was in danger of becoming known as a chilly, aloof sort of person, averse to mixing.

His manner of meeting people even today tends to confirm that impression of him. No matter who the person may be, Beatty fixes a pair of penetrating eyes upon him, stares almost disconcertingly and keeps his gaze fixed and intent until he has sized up the individual.

Now for the hat! No one, not even a railroad president, wants to be thought chilly and aloof—a poor mixer. And as Beatty really is a good mixer and doesn't want people to get the wrong impression, he uses his hat to tell what is in his heart. He hasn't always had the time or aptitude to express it in words and manner. It is his way of telling folks that besides being a great executive, he is also a good fellow. Once you see him smile you know he never could get away with any "hard boiled" stuff.

The story of "Eddie" Beatty is a unique success story, just the kind of yarn he detests. Success with him isn't an aim. The humblest track "wop" may be as successful and happy in his niche as the railroad president in his, he believes. He is the despair of interviewers and boomsters. This is not from mock modesty which is, really, a kind of pontifical egotism. It is from a desire to let acts and facts speak louder than words; also from an initimate conviction that the greatest success of either an industrial or railroad corporation results from team work of all employes. The head is only the keystone to the arch; but the keystone would come down with a terrific crash if it weren't for the brick supporting it from the foundation. Beatty doesn't want any more credit than the lowliest track walker or switch guard.

Beatty was fortunate in choosing his birthplace. He chose to appear at Thorold, a small Ontario town, and there he must have breathed a water and rail transportation atmosphere from childhood, for his father was of the famous Beatty Great Lakes Steamship Lines. He must have imbibed without knowing it the correlation of these two—how they must work together to lower rates as they have on the Great Lakes — instead of being divorced to fight each other as by the American law separating ownership of coastal vessels from transcontinental rails — a system that fell down when the war tested it.

Externally, his life parallels and resembles many other lives. He went to the average school and then to college in Toronto, from which he was graduated to study law in the office of a firm handling C. P. R. matters. From this he moved on and into the presidency of the company.

It has been said that Beatty is a middle-of-the-road man, but if you imagine he is a compromiser, you don't know Beatty. He is never an extremist, self-hypnotized or otherwise. He holds to facts instead of opinions, and believes that if more men would do the same thing there wouldn't be so many differences of opinion.

An Informal Snapshot of Mr. Beatty Confronting Ship News Reporters in England.

Beatty is home-grown, and the first Canadian to occupy the overwhelming position he now has. His predecessors have been Lord Mountstephen, Sir William Van Horne and Lord Shaughnessy. Beatty was only 41 when he was appointed to the presidency less than ten years ago.

It is no mean job, this of serving as head of the Canadian Pacific. There is no business job in the United States so important, so influential or so many-sided as this one of Beatty's. It embraces the presidency of the greatest globe-encircling transportation system in the world; the presidency of a transcontinental railroad system of some 20,000 miles and a vast fleet of steamships plying on two oceans and four great lakes. It includes also the overlordship of thousands of miles of telegraph wire, a chain of hotels costing upward of $30,000,000, an irrigation enterprise representing $17,000,000, and immigration system having agencies in almost every city of Europe. It embraces the control of almost 100,000 employes, stationed all the way from Hong-Kong, through the Dominion, to England and the continent of Europe. It embraces the responsibility for investments aggregating something in excess of a billion dollars in railroads, steamships, docks, mines, manufacturing plants, forests, farms, gigantic machine shops and work shops, elevators, caravansaries, and a long string of etceteras.

This is a job that calls not only for business ability, but for political statesmanship, for its holder must be able to get along successfully not merely with employes and shippers and the public, but with the political powers.

A newspaper reporter once asked Lord Shaughnessy, then president of the C. P. R., what the road proposed doing on a certain matter. "My dear young fellow," was his reply, "I probably could answer your question, but there is a young man down the platform who can tell you a whole lot of things about the C. P. R. that I know nothing about."

He referred to Beatty, then vice president of the road. In Lord Shaughnessy's answer one finds the secret of "Eddie" Beatty's success. Beatty believes a man is never too old to learn something new. Since the early days when A. D. Creelman was made chief solicitor of the C. P. R. and took young Beatty to Montreal with him as his assistant, he has been reaching out, studying this and that, learning things. Month after month, year after year, Assistant Solicitor Beatty developed into a railroad man. Youthful in appearance, a mere youngster in years, he ofttimes surprised the brilliant array of legal talent he was pitted against with his vast knowledge of the mat-

ter he was arguing. One day it might be a case involving an engineering question. If so, Beatty, in order to prepare an invulnerable brief, would summon the road's ablest engineering experts, have them elucidate every technical out-and-in, so that when he stood up before the court he would be able to talk with the air and even the knowledge of an experienced engineer. If the case concerned the cause of an accident, Beatty would have the heads of the department concerned put before him all the facts and theories bearing on the case, and these he would absorb and digest on the spot. A suit affecting one of the company's hotels might have to be argued. Beatty would probe to the bottom of the statutes governing this phase of the system's operations, and incidentally, pick up a fund of knowledge concerning the hotel business.

Sooner or later every department had to turn its whole workings outside in for his illumination and fortification. He got a comprehensive insight into every one of the larger phases of the system's activities, and it was this comprehensive insight that made him first general counsel, then king's counsellor, then vice president, then a director, and finally, at the age of 41, president of the entire system.

Edward W. Beatty is not given to oratory and eloquence. Although Irish blood flows through his veins, he has never kissed the Blarney stone. He is no rhetorician. He has not a glib tongue. He does not bubble over with Gaelic wit. He is not flashy; he is not especially or overwhelmingly brilliant. You feel at home with him after a while.

Yet he has reached the top rung of the proverbial ladder. He did this by actions, not by words. He did it by buttressing himself with facts, by industrious study, and by developing a degree of judgment that has become almost uncanny. He did it all quietly. So quietly, in fact, that when he was made a vice president and a director of the C. P. R. there wasn't a single line in Who's Who about Edward W. Beatty.

President Beatty has great faith in the future of Canada and the Canadian Pacific.

"One of the most satisfactory aspects of the general situation," he said, "is found in the fact that the prosperity and progress evident in Canada is common to all sections of the country. It is evident on the Pacific Coast, and in the Maritimes we see similar signs of markedly improved conditions. Increased railway car loadings there, as in most parts of the country, reflect a stimulation in general production, and the improved conditions of business in other parts of Canada has its favorable effect upon the volume of trade moving through the eastern provinces.

Mr. Beatty is Chairman of the Board and President of the Canadian Pacific Railway and All Its Steamship Lines.

"Perhaps the best barometer of the year's general business conditions is to be found in statistics covering railroad shipments generally. Judging by car loading figures, business handled ran about ten per cent above 1927 which was in itself a year of unusual activity. More than half of the car loadings came from Eastern Canada, where they had reached 2,013,000 as against 1,945,000 in 1927 and 1,880,000 in 1926. It is interesting to note that the mine was again the largest producer of railway tonnage during the year. In previous years this primacy was due to freight received by Canadian and United States railways, but only this year (1928) has the mine captured first position among the different classes of tonnage produced within Canada.

"The striking increase in railway tonnage has naturally been accompanied by an increase in railway gross and net earnings. For the ten months to the end of October, 1928, Canadian Pacific gross was $183,588,-531 as against $160,384,749 for the same period in 1927, while the net totalled $41,231,568 as compared with $31,466,611 in 1927. The ratio of operating expenses to gross earnings for the first ten months of 1928 was 77.54 as against 80.83 per cent for the same period in 1927."

Under Edward W. Beatty's aggressive guidance the Canadian Pacific set afoot last year many important extensions of service. Among these may be mentioned the erection of the Royal York Hotel in Toronto, at an approximate cost of $16,000,000, the building of between 300 and 400 miles of branch lines in the West, participation in the building of the Lord Nelson Hotel at Halifax, and the building of a new "Pines" Hotel at Diby, Nova Scotia. The company also launched or started building ten ocean liners of a standard in equipment, service and speed not excelled anywhere in the line of work they are called upon to do. Five of them are freighters for regular weekly sailings from this side, and the others are passenger boats whose combined efforts, Mr. Beatty believes, should establish the St. Lawrence route to Europe.

Mr. Beatty is a prodigious worker. His one thought seems to be to make the Canadian Pacific just a bit better than the best transportation system in the world. He labors on trains and everywhere as if he were in his own office. But hundreds of his friends know that he can relax and play just as hard as he works. He is an ardent apostle of sound health. He believes that to fight the battle of life a man should keep himself as fit as the fighter on the field of battle. He thinks golf is too mild an exercise for a man of his years. His chief form of recreation is handball. Apart from business his favorite study is history. He

has a tremendous grasp of world affairs. And he smokes a pipe. You can see it in the little picture, up front. His hat, you'll notice is a bit cocked over one eye and he is looking rather suspiciously at some one. In this case it chanced to be a group of inquisitive reporters, writer chaps or press men they're called in England. And the little picture was snapped over there some where.

Samuel Rea Honored

Samuel Rea, who retired from the presidency of the Pennsylvania Railroad in 1925 has been elected an honorary member of the Institution of Civil Engineers, the headquarters of which is in Great George Street, Westminster, S. W. 1., London. The certificate bears the signatures of E. F. C. Trench, president, and H. H. Jeffcott, secretary.

Honorary membership in the Institution of Civil Engineers is one of the highest marks of distinction that can be conferred upon a member of the profession or eminent public servant.

The organization is international in its scope, having members in nearly every country of the world. There are approximately 10,000 altogether on the rolls, but only 16 honorary members. Mr. Rea's election makes him the only honorary member in the United States, or, in fact, in the entire western hemisphere. Major General George W. Goethals represented America in the list of honorary members from 1915 until his death.

The honorary membership constitutes an outstanding group of men in varied walks of life. Mr. Rea's 15 colleagues among the honorary members now living are the following:

King Victor Emanuel of Italy, King Albert of Belgium, the Prince of Wales, the Duke of Connaught, Prince Purachatra of Siam, Earl Balfour, the right Hon. John Burns, Marshal Foch, Sir Richard Tetley Glazebrook, Earl Haig, Earl Jellicoe, Senator Guglielmo Marconi, General Jan Christiaan Smuts, Sir Joseph John Thomson and William Cawthorne Unwin.

The Institution of Civil Engineers was established in 1818 and incorporated by royal charter, granted by King George the Fourth in 1828. Its first president, elected in 1820, was Thomas Telford, a famous engineer in the early years of the last century, whose name is perpetuated in the form of highway construction known as Telford Road. The purpose for which the institution was created is stated to be: "For the general advancement of mechanical science, and more particularly for promoting the acquisition of that species of knowledge which constitutes the profession of a civil engineer." The definition of "Civil Engineer" which the institution has adopted is rather interesting. It is stated to be "The art of directing the great sources of power in nature for the use and convenience of man."

The by laws define the requisites for honorary membership as follows: "Honorary members shall be either distinguished persons, who from their

Samuel Rea

positions are enabled to render assistance in the prosecution of public works, or persons eminent for science and experience in pursuits connected with the profession of a civil engineer, but who are not engaged in the practice of that profession in any part of the British Empire."

Mr. Rea has been a regular member of the institution for nearly 38 years, having been elected February 3, 1891.

How 'Frisco Employes Help

The yearly report of solicitation activities by the members of the 62 Frisco clubs shows that these employes secured for their railroad 6,438 carlots of freight, 8,678 l.c.l. shipments and 5,576 passengers in 1928. These records were kept by club secretaries, and do not include traffic secured by agents or other traffic solicitors who are paid to solicit business. This record was made entirely by voluntary solicitation on the part of employes who are holding down other than soliciting jobs. There is no way of figuring the revenue accruing to Frisco Lines from the l.c.l. shipments since there are no tonnage figures on this business.

Tabulation of the solicitation and attendance activities of the clubs was made by the central committee in St. Louis, after requests had been made to each club secretary for his report.

Unfortunately 17 clubs had not kept an accurate check on the results of their solicitation, and while fairly safe estimates were available, the committee felt that only accurate reports should be accepted. Thus the creditable showing was made by 45 of the 62 clubs on Frisco Lines.

Springfield, Mo., men's and girls' clubs head the list by a total attendance of 3,300; carlots secured, 2,288; l.c.l. shipments, 870, and passengers, 3,571.

Down in territory a great deal more competitive, Oklahoma City, St. Louis Girls' Neodesha, Memphis, Jonesboro, Muskogee and Okeene show up to splendid advantage with many carlots secured.

Just how much revenue all this unselfish work resulted in turning into the Frisco treasury is not known accurately, but the part of it recorded does show that revenue from employe-secured freight amounted to $463,536, and $19,794 from passenger fares, a pretty fine demonstration surely of employe-interest in the thing that means bread and butter and the other items that human beings must have.

What did it cost? Employes put in many an hour of labor inspired by loyalty to the company and attention to something in their own good interest. You can't set a price on this service. W. L. Huggins, chairman, hustled about over the system for months wearing out his shoes, which the company certainly should replace, getting a fine gloss on his clothing and a rasp-like edge on his voice. In what is called cold cash the Frisco put up $250 for membership cards. It's pleasant to figure it up: $483,330 revenue for $250 outlay. If this is the way the Frisco employes intend to go on acting the least the company can do is to invite all of them to visit the Pacific Coast next winter. Fine work.

That is a good book which is opened with expectation and closed with profit.—*Alcott.*

Business District of Oklahoma City, on What Was, 30 Years Ago, the Grazing Ground of Cattle and Buffalo, and the Home of Indians.

What Railways Did for A City

Competition They Now Have

By Ernest R. Chamberlain

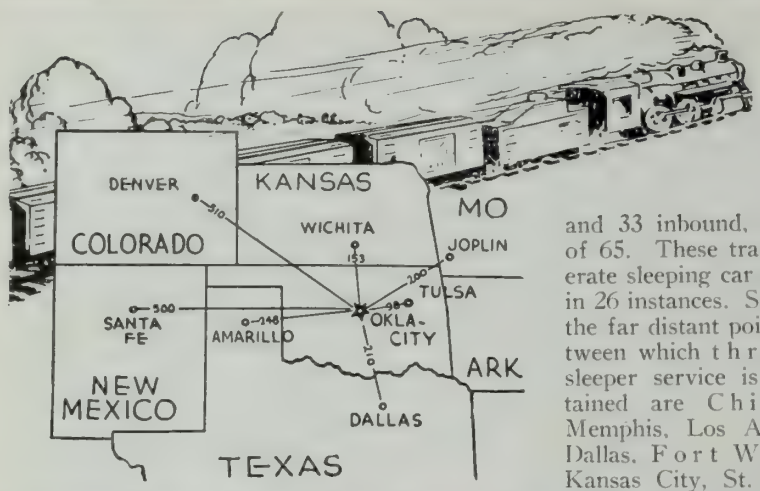
If ever there was a town that owed its development primarily to good transportation that town is Oklahoma City. About 30 years ago longhorn cattle and buffalo were grazing over what is now the retail center of a city having a population of 160,000. Active citizens, determined to utilize every means to develop and improve the city's trade area and its transportation facilities, are credited in Oklahome City, more perhaps, than in other centers of business, with the fine results attained.

Indeed the zeal with which the citizens made their bid for early railroad connections has caused 20 years of local conflict over the relocation of the railroad tracks, the elimination of grade crossings, and the construction of terminal facilities in keeping with the city's rapid growth. The present year brings the solution of this problem coincidentally with the opening of a new major oil field at the city's gates and an expansion program on the part of all transport groups.

Seven railroads radiate in 13 directions from Oklahoma City. They are the Santa Fe, Rock Island, M-K-T, Frisco, Oklahoma City, Ada & Atoka; Fort Smith & Western, and the Oklahoma Railway. The five large trunk lines, Santa Fe, Rock Island, Katy, Frisco, and Fort Smith & Western, reach most of the larger cities on their own rails and the entire trade territory through their tributaries, resulting in expedited service by reason of through merchandise schedules and the elimination of transfers.

Southwestern cities have all engaged in a race to capture the new territory recently opened in the Texas Panhandle as a result of the oil development around Amarillo. Much of this territory had never been served by a railroad.

When the Q. A. & P. (Frisco) completed its line between Floydada and Quannah, Texas, Oklahoma City was given expedited service which will reduce the time of delivery by 24 hours. Within the past few years the F. W. & D. C. has built a number of lines in Texas all giving Oklahoma



Railroads, Branching Out in Every Direction Into Five States Have Made A City of the Capital of Oklahoma.

City a new market in a rapidly developing territory at advantageous rates and service as compared with any other southwestern center. This new territory is one-half as large as the entire state of Oklahoma with no other large market economically available between Oklahoma City and the Pacific Coast.

In the present stage of development in the Southwest, Oklahoma City is now prepared to compete with heretofore-favored cities to the north and south. This is by virtue of decisions of the Interstate Commerce Commission which have taken the hump out of the state's freight rates and provided a non-discriminatory basis for the entire Southwest.

The new basis of freight rates will place Oklahoma on a freight rate parity with every neighboring state. This means that manufacturers can now ship into Oklahoma from any point in the United States at freight rate savings varying between 20 per cent and 25 per cent.

Manufacturers locating branch offices in Oklahoma City can now feel that a permanent freight rate structure, conducive to stability, has become a fact in Oklahoma. Mile for mile, both incoming and outgoing shipments will be handled on an equalized basis.

Thus the roads to Oklahoma's agricultural, oil and industrial wealth have been opened wide, and Oklahoma is fortified in its bid for eastern capital to recognize the state as an ideal location for manufacturing and distributing industries.

The Southwest is adequately served from Oklahoma City from a railroad passenger standpoint. Thirty-two passenger trains are scheduled out of Oklahoma City daily in all directions and 33 inbound, a total of 65. These trains operate sleeping car service in 26 instances. Some of the far distant points between which through sleeper service is maintained are Chicago, Memphis, Los Angeles, Dallas, Fort Worth, Kansas City, St. Louis, Denver, Houston and all intermediate points.

This service is augmented by a complete network of passenger bus lines, totaling 16, operating under schedules from Chicago, St. Louis, Kansas City, Dallas, Fort Worth, Amarillo, El Paso, Los Angeles, San Francisco, Portland and Vancouver, B. C. Practically every large center in Oklahoma is likewise served by through schedule buses. A similar freight service is handled by trucks into and out of Oklahoma City and, in conjunction with railroads enables city merchants to give store door delivery daily as far west as the Texas Panhandle enabling merchants in small towns to reduce stocks, assured of a prompt and adequate supply.

Oklahoma City, by virtue of recent rate decisions, is fortunate in that it has two natural trade territories, one based on rates and the other based on service. The existing service territory exceeds the rate territory due to transportation facilities of railroads, passenger buses, motor trucks and airplanes. Merchandise and mail can be delivered within this territory more rapidly than from any other competitive point. The railroads are actively preparing for greater expansion.

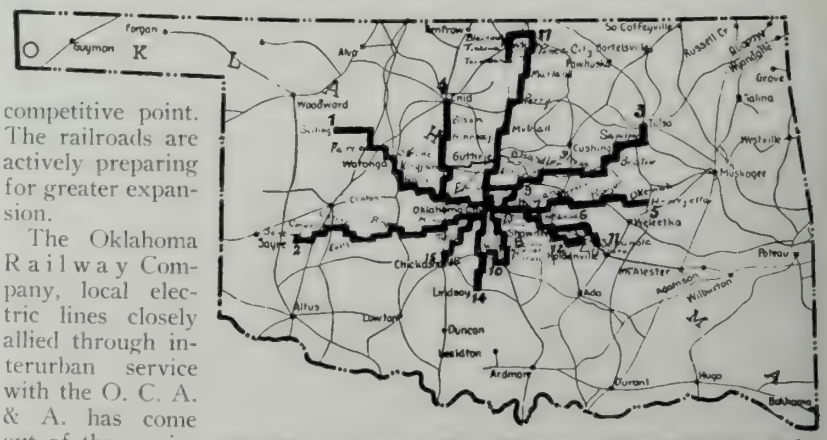
The Oklahoma Railway Company, local electric lines closely allied through interurban service with the O. C. A. & A. has come out of the receivership during the past 12 months and is spending over a million dollars in pushing its freight facilities into prospective industrial territory.

The Santa Fe is elevating all its tracks into the city, enlarging its yards and preparing to construct a station at a cost of approximately $1,000,000.

The city voted a $4,000,000 bond issue for the purchase of present rights of way of the Frisco and Rock Island through the retail district. These roads will enter the city farther south eliminating all grade crossings and entering a new and larger terminal with adequate yards and freight facilities. They are planning to spend huge sums in the erection of a joint station and the acquisition of right of way and trackage near the new proposed industrial section. Work is already under way.

Oklahoma City has already benefited by the freight rate adjustments and rail extensions. A new $500,000 public market with shipping facilities for facilitating the marketing of surplus garden truck is now in operation. In the next year both the Rock Island and the Oklahoma Railway Company are expected to participate in establishing market docks. The result will be a transfer of the bulk of the city's wholesale district to this new area, greatly facilitating the marketing problem of the city and the docking problems of the transport companies.

An $18,000,000 city building program during the past year with a prospect of $25,000,000 during the present year evidences the confidence shown by business interests in Oklahome City's ability to grow and supply the demands of an unusually prosperous market, meeting the demands of more than 700,000 people who live within its boundaries.



The Heavy Lines Indicate Passenger Bus Routes Out of Oklahoma City; Lighter Lines Show Passenger Bus Routes Connecting With That City's Bus Lines.

SELF-PROPELLED COMPRESSOR and "STRAIGHT BACK" TIE TAMPERS

On The Job

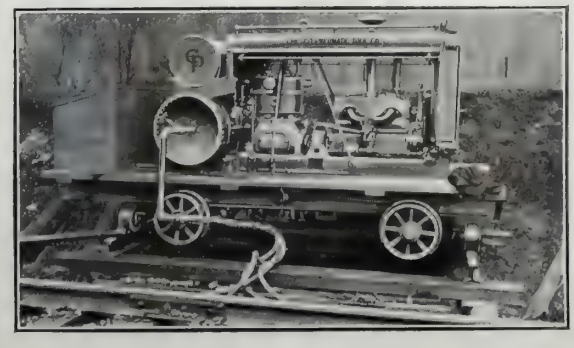
MANY railroads are using these units because of their convenience, speed and reliability. The standard CP Compressor is mounted on a truck frame carrying flanged wheels with Timken roller bearings, transverse shifting wheels and winch, air-operated lifting jacks, lifting bale and a roomy tool box. The gasoline engine that operates the compressor also propels the car at a speed of 12 to 18 miles per hour, depending upon its size. The compressor is furnished in sizes of 110, 160, 220, 265 and 310 cu. ft. per minute displacement. The CP Tampers have several interesting features that are fully described in folder No. 1646. Details of the Self-Propelled Compressors are given in Bulletin No. 789.

Chicago Pneumatic Tool Company

Railroad Department

6 East 44th Street, New York
1004 Mutual Bldg., Richmond, Va.
175 First Street, San Francisco
310 S. Michigan Ave., Chicago

J-293



What Air Transport Is Doing

By

Winsor Williams

American Air Transport Assn.

International Newsreel.

Luxurious Cabin of the Dornier Metal Flying Boat to Operate Between Detroit and Cleveland This Summer Over the Great Lakes; Speed 120 Miles An Hour.

AIR TRANSPORT is a mode of communication of today, not tomorrow. It is here, a healthy, well financed and efficiently operated transportation system spread out between the oceans and extending from New England to Mexico. It operates on regular schedules and is faster and more colorful than any surface system yet devised. Planes are not tied to rails, limited to charted sea lanes or concrete roads. Their routes are the airways over which air mail, express and passenger planes are now flying 10,000,000 miles a year. They have increased from 218 miles between Washington and New York in 1918 to a network of 17,055 miles today; from two stops, planes now land daily at 108 cities. The layman might rightfully ask who used the air mail to such an extent that 3,400,000 pounds of air mail alone found its way into the cockpits in 1928. To answer this question the American Air Transport Association conducted a survey and found that the film companies are the largest users, then come bankers, insurance companies, bond houses, jewelry shippers, and advertising agencies.

A New York engineering firm was called upon to forward estimates to Fort Worth. The papers were put in the air mail late Saturday afternoon and were received in Texas in ample time for the meeting early Monday morning.

Similar use was made of the air mail when it was necessary to forward documents to Kansas City for signature. They were mailed in New York late Thursday, received at destination, signed and returned to New York in the first mail on the succeeding Monday. On the same day it became necessary to file bonds in St. Louis. They were mailed in New York Monday and were received in St. Louis Tuesday.

A Dallas engineering firm used the air mail to advantage in preparing bids for a courthouse. It was necessary to send the plans to a marble contractor at St. Paul for estimate. The plans left Dallas Saturday, were received in St. Paul Sunday afternoon and the firm had the estimate and plans back in Dallas before Wednesday.

A bond house was doing the financing for a public utility project in the Southwest and engineers were waiting until the deal was completed. On Friday the copy for the circulars was forwarded to the Chicago financial institution by the Fort Worth firm; circulars were printed in Chicago before the following Saturday and were delivered to the Fort Worth firm early Monday morning.

The value of air express was demonstrated recently when the Crane Company

ONLY A few years ago we used to write about the high pressure age in which we were living. Imagine, if you can, what the children born in 1929 are going to see and do in the next 20 years! When men talked, a year or so ago, about freight and express going by air their prophecies were greeted with smiles of good-natured ridicule. But today such things are so commonplace that when the regular air express of February 15 carried more than 2000 pounds of packages out of Los Angeles, the fact was treated casually in two inches of type under a small headline on an inside page of great daily papers.

Express and freight, many tons of it, are moving through the air in every part of the country. True, the steam railroads can and do carry such cargoes for very much lower rates. The development cited is worth particular notice because sooner or later, as in the case of passenger traffic by air, rates will be cut. The word "transportation" has indeed assumed a very large meaning in our daily lives.

TWO FEATURES OF THE
Pyle-National Locomotive Train Lighting System
OF INTEREST TO OPERATING OFFICIALS:

Better Lighting
Lower Operating Costs

"This road's locomotive train lighting has met with the enthusiastic approval of the traveling public. Installation costs, and also cost of operation and maintenance have been small. There are now 560 cars and 178 locomotives equipped."
from Railway Electrical Engineer, April 1928.

THE Pyle-National system of train lighting, now in operation on 30 roads, earns enthusiastic approval from patrons and operating officials alike. To anyone who has seen the uniform, comfortable reading light in these electric lighted cars, there is only one choice possible—modern standards of operation require electric lighting.

This service to the traveling public is so superior to other methods of train lighting that many operating officials assume that it must be more costly. Of all the installations of the Pyle-National locomotive train lighting system, every one has demonstrated not only moderate installation costs, but a distinct saving in operation and maintenance, when compared to former costs.

Operating officials who are interested in effective, economical train lighting for branch line and suburban services can have complete information on request.

The Pyle-National Locomotive Train Lighting System is complete, including locomotive and car wiring equipment, control panels, and battery auxiliary if required by the service conditions.

The Pyle-National Company

1334-1358 N. Kostner Avenue ~ Chicago, Ill., U.S.A.

EXPORT DEPARTMENT
International Railway Supply Co.
30 Church Street, New York City

BRANCH OFFICES
3509 Grand Central Terminal, New York City
815 Boatmen's Bank Bldg., St. Louis, Missouri
311 Builders Exchange Bldg., St. Paul, Minnesota
2241 Oliver Bldg., Pittsburgh, Pennsylvania
716-718 Little Bldg., Boston, Massachusetts
1000 Marine Bank Bldg., Houston, Texas

CANADIAN AGENTS
The Holden Company, Ltd.
Montreal, Toronto, Winnipeg, Vancouver

The Dornier Flying Boat Over Water. Notice the Motors Are on Top of the Wings.

sent a 318-pound metal shipment to the Baker Iron Works, Los Angeles. The cost of shipping this material by air express was $718, but the saving in transit time more than compensated for the high cost, as production of a motion picture by the William Fox Productions had been suspended pending the arrival of the joints. The cost of delay would amount to many thousands of dollars daily to the film company. The joints were for use in paraphernalia to enable the photographer to make pictures of a bareback rider in a circus production.

An automobile plant in St. Louis was installing the last 50 sets of lamps in stock. A shipment by freight from Detroit had been delayed. Wires were exchanged and the box car was set out on an Indiana siding, where an airplane took on a ton of the lamps. Two hours later they were being mounted by men working on a per diem basis. Instead of paying idle men and filling up the assembly lot with cars without lamps, the company preserved its routine by recognizing modern transportation.

A consignment of flowers was flown to New York so that they might arrive with the bloom of California fresh upon them. An intermountain florist is sending daily shipments of sweet peas to Middlewest retailers. Shippers of oil from California to the Atlantic Coast save thousands of dollars in interest by forwarding bills of lading via air.

Alert buyers scour the New York market for the latest, and every night the west and south and northbound planes from New York carry models of hats, gowns, lingerie for Boston, Chicago, Atlanta, St. Louis, Minneapolis, Seattle, and other cities. Buyers attempt to steal a march on their competitors by getting the new designs in their stores first.

Repair parts for a threshing machine in Nebraska to save the payroll an idle crew would receive; a forgetful husband who delayed his wife's birthday present until too late for the regular mail; a belated package for a traveler about to board ship for foreign parts; photographs of important news events—and so on through a surprising diversity of shipments, via air transport. The half million letters carried daily by air mail are supplemented by a growing volume of parcel mail and express.

So-called hand-to-mouth buying, if not actually increasing certainly is not on a downward trend. The airplane is responsible for a good share of this condition. Retailers who used to order months ahead of time now order a week in advance. They can keep more up-to-date stocks by sending orders and receiving samples overnight, where previously the same service required a week or more. Consequently, stocks are more easily replenished and smaller inventories can be carried, interest charges are reduced.

The First Shipment by Air Express Is Shown Here, a Bolt of Silk, Flown from Dayton to Columbus, Ohio, in 1910, in the Fragile Plane of That Period.

While the air mail service started as a business to be carried on in daylight hours, it now gives night service over the airways which are equipped for night flying on about two-thirds of the routes. Additional lighting facilities are being installed and within a short time every part of the country will be within 24 hours transportation distance from the other. Here is a table showing the saving in time by air mail. This will have to be revised when faster planes now being manufactured are put in service and the lighting arrangements are completed:

From	To	Train	Air Mail
New York-San Fran...		86 Hrs.	31 Hrs.
Chicago-New York ...		20 Hrs.	9 Hrs.
St. Paul-Dallas		37 Hrs.	17 Hrs.
New York-Atlanta ...		24 Hrs.	10 Hrs.
Boston-Cleveland		16 Hrs.	8 Hrs.
Los Angeles-St. Louis		60 Hrs.	26 Hrs.
Youngstown-D' Moines		20 Hrs.	8 Hrs.
St. Louis-St. Paul.....		18 Hrs.	8 Hrs.
Los Angeles-San Fran.		12 Hrs.	3 Hrs.

The savings which accrue to banks, according to the American Air Transport Association, amounts to $144,000,000 or two per cent of the estimated yearly capital of $7,200,000,000 arriving in New York by air mail. Twenty-four million dollars of capital, negotiable securities and mortgages wings its way daily into Wall street by air mail, bringing these interest-bearing papers to New York's financial center one to three days ahead of train mail. A survey of banks, insurance companies and business concerns showed that 96 per cent utilize the air service and 40 per cent make extensive or daily use of it.

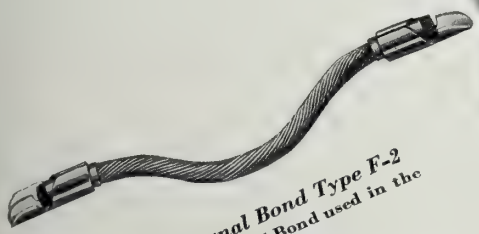
While the air mail has formed the backbone of commercial aviation to date, operators are utilizing, or have plans for passenger routes as extensive as those of the air mail. The West Coast now has two passenger lines operating between Seattle and San

CONGRATULATIONS

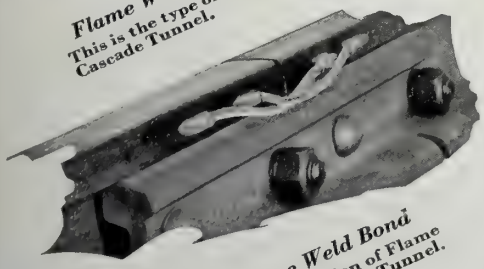
The American Steel and Wire Company wishes to tender a deserved tribute to the Great Northern Railroad and A. Guthrie and Company, contractors, on the successful completion of the Cascade Tunnel.

It was a tremendous project nobly conceived and ably executed, truly an epoch making achievement.

This Company naturally takes pride in the fact that its Flame Weld Bonds were used in the electrification of the tunnel, thus playing some part in this great forward step in transportation.



Flame Weld Signal Bond Type F-2
This is the type of Signal Bond used in the Cascade Tunnel.



Application of Flame Weld Bond
This shows the double application of Flame Weld Bonds used in the Cascade Tunnel.

American Steel & Wire Company

Subsidiary of United States Steel Corporation

208 So. LaSalle St., Chicago 30 Church St., New York
Offices in—Boston, Cleveland, Worcester, Philadelphia, Pittsburgh, Buffalo, Detroit, Cincinnati, Baltimore, Wilkes-Barre, St. Louis, Kansas City, Minneapolis-St. Paul, Oklahoma City, Birmingham, Atlanta, Memphis, Dallas, Denver, Salt Lake City.
U. S. Steel Products Co.: San Francisco, Los Angeles, Portland, Seattle.
Export Representative: 30 Church St., New York City

Francisco; three run from the latter city to Los Angeles where connections may be made for San Diego, Las Vegas, Nev., Phoenix, Tucson, and another extension to El Paso. The Boeing system, which operates the western end of the transcontinental air mail route between Chicago and the West Coast, has been carrying passengers in its mail ships. This passenger service will be augmented early in the spring by at least two lines equipped solely for passenger carrying. One will be a combination air-rail service with trains leaving New York in the afternoon and transferring passengers to planes the next morning at Columbus, Ohio. These planes will reach Dodge City, Kan., that evening in time to catch the westbound train. The following morning at Las Vegas, New Mexico, passengers are again transferred to planes which glide down to Los Angeles late that afternoon, approximately 48 hours after leaving New York."

One of the Western Air Express Passenger Planes Flying Daily Between Los Angeles and San Francisco.

Two new lines for carrying passengers will also start operation in the spring between Chicago and New York. Detroit-Cleveland, Chicago-Twin Cities, Chicago-Atlanta, St. Louis-Kansas City, and many other cities are linked together by passenger routes now. One company plans to start a system of short hauls between 25 cities. This concern will build and operate its own terminals on which will be built the latest and best equipment for pilot training.

To protect these routes the government and operators are demanding and having built into the service every possible safety factor. Radio is taking such an important part in communicating between the ground and planes in the air and from airport to airport that the federal radio commission has recently set aside 64 channels in the 1500-6000 k.c. band.

The radio beam has developed to a point where its commercial use is practicable. This is what its name implies: A beam which pilots can follow merely looking at the instrument board, proof being constantly before them, by a system of lights, that they are or are not on the proper course.

Another safety device is an ice indicator enabling pilots to tell at a glance when ice is forming on the wings. Still another is a new depth indicator which registers the height above the ground over which the ship is passing instead of the distance above sea level as was the case with depth indicators in use prior to the present invention.

Even the fog danger seems pretty certain soon to be overcome. The

Herbert Photo.

America's First All-Streamline Airplane. This Construction Makes Impossible, the Builders Say, the Dreaded Tail-spin Which Has Cost So Many Lives.

Apply this thought to the locomotive. Without the superheater, feed water heater and other capacity-increasing factors it is as Stephenson left it—bigger and heavier, but that is all.

On any locomotive, new or old, large or small, the Elesco superheater and feed water heater is good for at least 40 per cent increase in boiler capacity.

And this capacity increase is without fuel cost.

These two factors are essential on any power, new or old.

THE SUPERHEATER COMPANY

17 East 42nd Street
NEW YORK

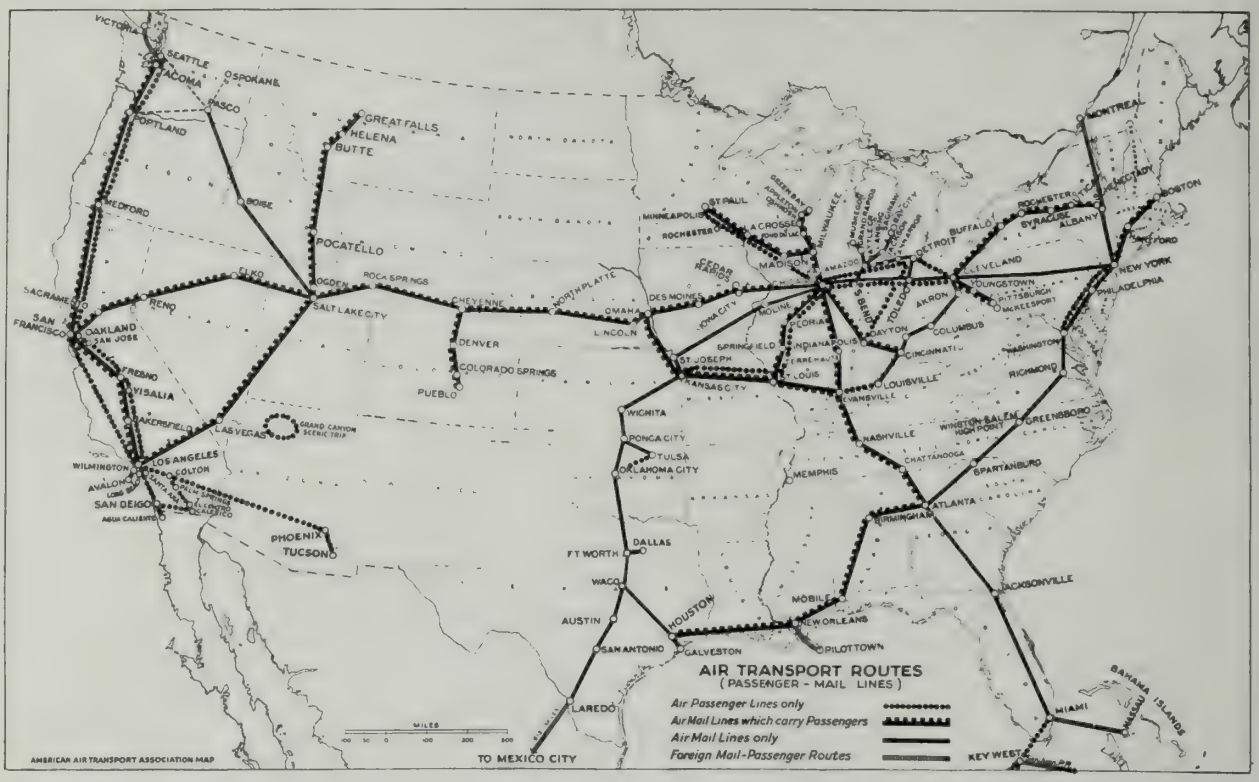
ELESCO

Peoples Gas Building
CHICAGO

Canada: The Superheater Company, Limited, Montreal

Feed Water Heaters | Superheaters | Exhaust Steam Injectors
Superheated Steam Pyrometers

A-219



National Lamp Works of the General Electric Co., has announced a powerful beam of light projected by a new form of airport beacon. This light provides a fan of light which, when rotated, reaches a pilot at any angle at which he may approach the field. One half of this fan of light is white, and the other half red. The rotation produces alternate red and white flashes, enabling the aviator to distinguish the airport from brightly lighted parks, railroad yards, and streets. The high intensity beams are projected by the lower, drum-shaped units, of which there are four, two red and two clear, identical in design with those used to mark airways. The upper units, set to project a less intense beam of light at higher angles, are standard narrow-beam floodlight projectors.

A Los Angeles inventor is showing a mysterious yellow light which, he says, cuts through fog as a knife goes through cheese. Every week, almost every day produces some new wonder. What will the country be doing 50 years from now?

Keep Out the Termites

By Thos. E. Snyder

In regions where much damage is caused by dry-wood termites, all doors, windows, or other ventilation openings in buildings should be properly screened with 20-mesh, non-corroding metal screening, especially in the case of attics. This will prevent the entrance of the winged termites, which bore directly into wood.

Foundation timbers should be impregnated with coal-tar creosote. Interior woodwork should be given at least brush or dipping treatments with zinc chloride or other equivalent preservative and then painted with a heavy enamel paint. Such paints alone will afford some protection from attack by this type of termite, but paint also should be applied to woodwork in attics, as well as elsewhere where it is not ordinarily painted because not visible. To afford permanent protection to buildings, especially in the tropics, all woodwork used in buildings should be impregnated with standard chemical wood preservatives.

This impregnation should be made before the wood is placed in the structure and should be given to wood cut to exact necessary dimensions. In case impregnated wood is to be framed after treating, the cut surfaces should be given a brush or dipping treatment with the hot chemical. Such impregnated wood or timber can be purchased from wood preserving companies in various sections of the United States.

For interior woodwork and furniture, which require subsequent finish, such as waxing, varnishing or painting, an impregnation giving an average absorption of ¾ to 1½ pounds of dry zinc chloride salt per cubic foot is recommended. Sodium fluoride and chlorinated naphthalene and other equivalent preservatives, while often more expensive, are also effective preservatives for timber not to be used in contact with the ground, where moisture would cause leaching out in the case of soluble salts.

Wood pulp or fiber products, such as the various wood fiber processed or composition boards, or fiber boards, for interior finish and substitutes for lath or for exterior use, can be protected from attack by termites by adding certain poisons to the pulp or laminated boards in the course of manufacture. Several suitable poisons have been found effective and practical, but further experiments are under way testing additional chemicals suitable for this type of product.

Part of a paper delivered before the American Wood Preservers' Convention last month. Mr Snyder is acting supervisor, bridges and buildings, Buffalo, Rochester & Pittsburgh Ry.

Plenty of Time

Several federal prisoners were assisting an Atlanta Railroad gang to replace the planking in a road crossing near the prison. Being on rather short time, the foreman remarked to one of the prisoners: "Hurry over there and get that shovel, we don't have to have all day to do this job." Convict: "I have 99 years to get that shovel."

A REAL NEED

Quoted from an article by the Master Car Builder of one of America's Great Railway Systems.

"TO one familiar with yard and train service, there appears to be no room for argument about the need of a practical Automatic Connector. The greater life of hose, the absence of broken train pipes resulting from uncoupling cars without first disconnecting the hose, the saving of time and labor in making up trains, and the reduction in the cost of pumping air, all of which might be classed as direct or apparent economies, would undoubtedly justify the cost of application alone, but the writer is even more impressed with the benefits that would be secured *indirectly*. Numerous leaks are found in hose and gaskets at all seasons of the year, almost entirely the result of the practice referred to above: viz., pulling the hose apart, thereby injuring the fabric and inner tube.

The saving in hose and train pipe leakage, however, sinks into insignificance when compared with the immense amount which would be saved in eliminating train delays and reducing labor costs and coal consumption.

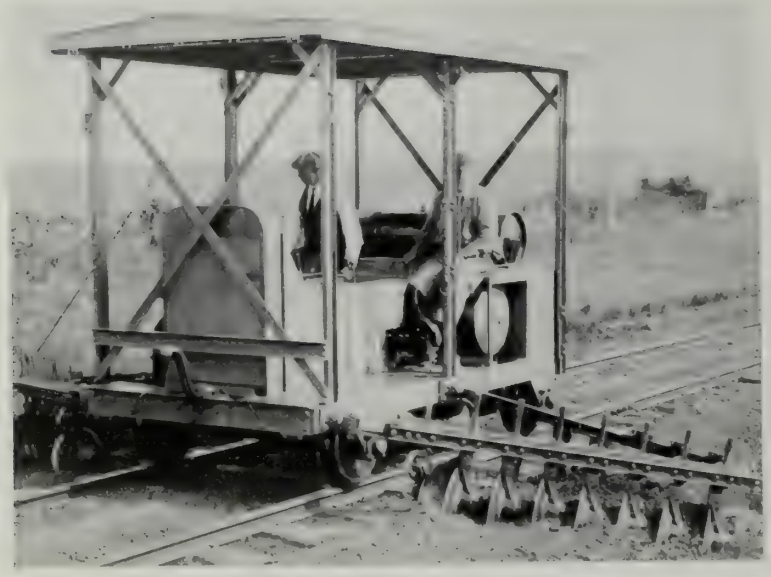
If the figures on acceleration of traffic with a Connector could be compiled they would represent a saving which would stagger the closest student of railway operation."

ROBINSON AUTOMATIC CONNECTOR

"Building Automatic Connectors is our exclusive business"

415 Lexington Avenue
New York

Complete information on request



Two Men Are Enough to Operate the Fairmont M-23 Big Discer, and It Can Make 40 Miles a Day.

Fairmont M23 Big Discer

FIFTEEN years' experience in building ballast discers of all sizes led Fairmont Railway Motors, Inc., of Fairmont, Minn., to develop the M23 Big Discer. This machine has ample power and weight to cut through hard packed rock ballast right down to and below the level of the bottom of the ties. In addition to this ability to disc just as deeply as needed, the Fairmont discer makes upward of twice as many miles a day as was heretofore possible, and does it with a crew of only three men, consisting of an operator, a helper and a pilot who handles train orders.

Besides loosening packed ballast and improving drainage, the M23 shapes the shoulder to any desired contour, uproots vegetation, and cuts ideal toe and sod lines for a trifling percentage of the cost of hand labor. Where new rock ballast has been recently applied the M23 may be used to trim sod outside the toe line to a maximum over all spread of 19 feet. Each of the 16 discs is adjustable three ways, for pitch, depth and angle, to conform to any roadbed section desired. Spring hinged adjustable surfacers flatten the disc furrows and collect vegetation, leaving the shoulders smooth. The discs may be reversed to plow old foul ballast away from the ties, preparatory to reballasting. Foul rock ballast shoulders can thus be thrown out at very low cost, and hand labor used only for screening and putting back the cleaned rock. Any or all of the discs are removable so the machine can run with only one, two or three outside discs for establishing new sod lines or cutting weeds.

Two Fairmont M23 Big Discers often made 40 miles a day each, last year, in ordinary ballast, cutting 4½ feet wide on each side and 8 inches deep, the outer 6 to 18 inches being old sod. The labor cost was 52 cents a mile. One veteran maintenance man said: "It looks like the answer to a roadmaster's prayer." The dangerous practice of men riding discs is eliminated by the use of 85-pound weights which are quickly placed above the discs when cutting hard packed ballast or sod. As the machine plows along at six to eight miles an hour each operator raises or lowers the discs on his side with a single air valve lever similar to the brake valve on a locomotive. The disc beams are never lifted by hand. The air hoist more than doubles the available discing time of the M23 by doing away with all delay formerly necessary at crossings, trestles, buildings, switches, signals, etc., to lift or slowly crank up the discs by hand. Obstructions are cleared without stopping or slowing up.

The Fairmont M23 is driven by a six-cylinder Continental Industrial Type engine developing 74 h.p. at 2500 r.p.m. An extra large radiator with gear driven pump and self-adjusting ball bearing fan keeps the engine from overheating in the heaviest pulling. Five speeds forward and five speeds backward are made available by a massive Fairmont reverse gear on the rear axle. Speed reduction is accomplished by a standard Brown-Lipe heavy duty truck transmission with four speeds forward and one reverse. The clutch is of the dry, multiple disc type. The weight is approximately 10,000 lbs. This enables the M23 to disc on one side only as well as on both sides at once to any desired depth.

The discs are super harrow steel, the strongest and most durable made, and can be unbolted and changed out without changing the position of their hub mounting. Each disc is mounted on two Timken taper roller bearings, which insures maximum thrust capacity and resistance to wear. The over all discing spread is 19 feet, or about five feet on each side, according to length of ties. The inner disc on each side is mounted on a spring hinge which permits it to swing up without damage if a projecting tie is struck, after which it resets itself instantly.

While operating cost is but a fraction of anything heretofore recorded, perhaps the most valuable feature of the Fairmont M23 discer is its ability to work busy main line between trains. High working speed and fast dead-heading in either direction results in a good day's work even where time available between trains is brief.

They Don't Toss the Cow

Abe Martin remarks: "It's getting to be so that the only safe way to cross the street is with a cow."

This is a sad commentary on the traffic situation, but there is some justification for Abe's conclusion.

Motorists who will take a chance at a grade crossing or even in passing children at play will slow down when a Holstein looms up ahead of them.

Without attempting to unravel the mystery, we may remark in passing that you are always safe in a street car.—*Trollicar Topics.*

Well, It May Be So

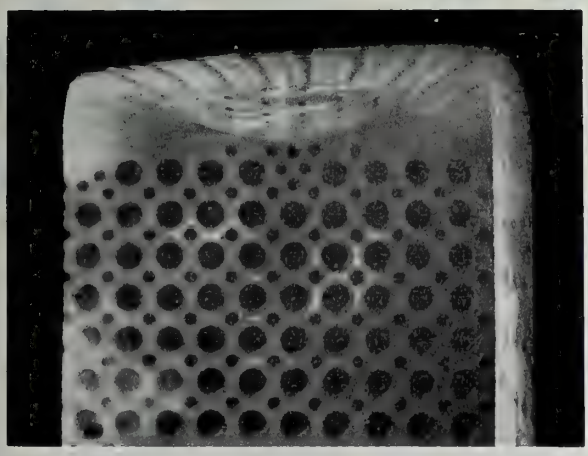
An eastern statistician estimates that over 100,000,000 people in the United States escaped being run over by automobiles, several of them having also escaped the year before. Doubt is expressed as to the current year.—*Trollicar Topics.*

The most discussion the better, if passion and personality be eschewed. Any discussion, even if stormy, often winnows truth from error—a good never to be expected in an uninquiring age.—*William Ellery Channing.*

SYPHON *Safety*

This material has been taken from the article "Locomotive Accidents During 1928," by Mr. A. G. Pack, Chief Inspector, Bureau of Locomotive Inspection, Interstate Commerce Commission, which appeared in the "Boiler Maker," January, 1929.

Mr. Pack says in part: "As in former years, boiler explosions caused by crown sheet failures were the most prolific source of fatal accidents. Sixty-six and six-tenths percent of the fatalaties during the year were attributable to this cause."



With

Fig. 12 shows a damaged crown sheet, equipped with two thermic syphons, caused by overheating due to low water. The sheet pulled away from 64 radial stays and pocketed to a maximum depth of 3¾ inches, covering an elliptical area 28 inches in width by 52 inches in length. The line of demarcation usually caused by overheating was indefinitely defined, therefore could not be determined. Since there was no damage to the crown sheet or stays other than within the pocketed area, it appears evident that the syphons supplied sufficient water to the crown sheet to prevent it from becoming overheated over any considerable area prior to the failure shown.

This locomotive was of the 2-8-8-2 articulated type, single expansion, carrying 240 pounds boiler pressure, with firebox 218 inches in length by 108 inches in width; weight in working order 649,000 pounds, tender 343,500 pounds, total 992,500 pounds.

Without

Figs. 1 and 10 show the result of an explosion caused by low water, which resulted in the death of the engineer and fireman, with an estimated property damage of $32,500. The estimated line of water at the time of the accident was 4⅜ inches below the front end of the crown sheet, which was 3 inches higher at the front end than at the back end. Fig. 10 shows the fusion welded seam joining the firebox and combustion chamber crown sheet which failed for a distance of 64 inches, where the initial rupture evidently took place.

Are You Playing Safe?

CIRCULATION SAFETY

ECONOMY

LOCOMOTIVE FIREBOX COMPANY

MONTREAL CHICAGO NEW YORK

Some Recent Court Decisions

A TEST case would be permitted to be brought into court by short line railroads to determine the rate on which they were taken over by the government during the war under a bill passed last month by the senate and sent to the house.

The measure would have the effect of adjudicating claims by the short lines against the government which have not yet been settled because of a dispute between the director general of the railroads and the Interstate Commerce Commission as to the date on which they were taken over.

Mrs. Lizzie Dameron filed suit in the city court of Atlanta for $50,000 damages, naming the Southern Railway as defendant, and charging that her son, John C. Dameron, was fatally injured on June 5, 1925, through the negligence of the defendant. Dameron was injured while working in the defendant's shop when the tram track sank down and broke, causing heavy pieces of steel machinery to fall on him, the plaintiff alleges. Dameron died December 28, 1928, the petition charges.

The court of appeals at Atlanta has handed down a ruling that a receipt obtained by fraud is not binding in settlement of a damage suit. The decision was rendered in the case of Gable against the Central of Georgia Railroad. It declared that Gable was injured and that he signed a receipt for a small sum of money paid him by the railroad. His attorneys contended that Gable was illiterate and that the receipt was not binding. The court of appeals ruled that Gable had the right to amend his complaint to the extent that he could allege that fraud was used in getting receipt. His suit is for $50,000 damages for personal injuries, and was appealed from the Chattanooga superior court.

The authority of a county to levy a tax of more than 150 per cent of the state tax of five mills was denied by the Georgia court of appeals in a decision affecting Long county. The court held that a county tax of eight and one-fourth mills in Long county was excessive to the extent of three-fourths of a mill, as the state tax is only five mills.

The case was brought to the court of appeals by the Atlantic Coast Line, which was assessed several thousand dollars under the county tax levied to pay current expenses and accumulated debts.

The court of appeals overruled another objection of the railroad to the tax levy, based on the grounds that a tax for tick eradication is not "for sanitary purposes," although it was included in a three-mill sanitary tax. The high court held that tick eradication could very well be considered as a movement toward bettering sanitary conditions in a county.

The Long county tax case had been under consideration by the court of appeals for some time, and the high court had asked the advice of the Georgia supreme court before passing on it, but the supreme court justices divided evenly in their opinion, leaving the court of appeals judges to decide the issue for themselves.

Persons walking at crossings or intersections of streets have the right of way over vehicles, according to the wise decision of the supreme court in Brooklyn, N. Y. The decision is pleasant reading, but courage falters when one realizes how few drivers of vehicles know about it. A city ordinance in Los Angeles says all motorists must stop when a pedestrian is crossing the street in the white lanes marked for their protection, but the law is about as effective as the Eighteenth Amendment.

How futile such laws may be was shown one day, about a year ago, when a trusting pedestrian in one of the white lanes held up a hand indicating to a speeding motorist that he wished to cross the street. Unfortunately, the motorist never had heard of the city ordinance or didn't think much of it, because he struck the pedestrian so hard that he nearly knocked him out of his clothing and into the hospital. In the subsequent suit at law judgment was returned against the motorist for $3,000. In the Brooklyn case the New York Railways Corpn. had appealed from a verdict awarding $50,000 to a man, one of whose arms had been cut off when a taxicab hit him and threw him under a trolley car. It was a three-to-two decision in the court.

The News of the Month

What's Been Going on in Transportation, Railroads, Automotive, Supply, Aviation

TWO GREAT transcontinental railroads, the Great Northern and the Western Pacific, have joined forces to carry through the greatest transportation development project in the West since the building of the Western Pacific. This project is to provide a line of railroad to close the 200-mile gap between the Southern Oregon terminus of the Great Northern at Klamath Falls and the main line of the Western Pacific at Paxton or Keddie, Cal. An official statement from the Western Pacific says the closing of this gap is clearly in the public interest because it will provide transportation service required by the territory tributary to the proposed new line and because it will provide a new and necessary through route between points on the Great Northern and its connections, and points on the Western Pacific and its connections. The two railroads have applied to the Interstate Commerce Commission for a certificate of public convenience and necessity which must be obtained before construction of the connecting line may begin.

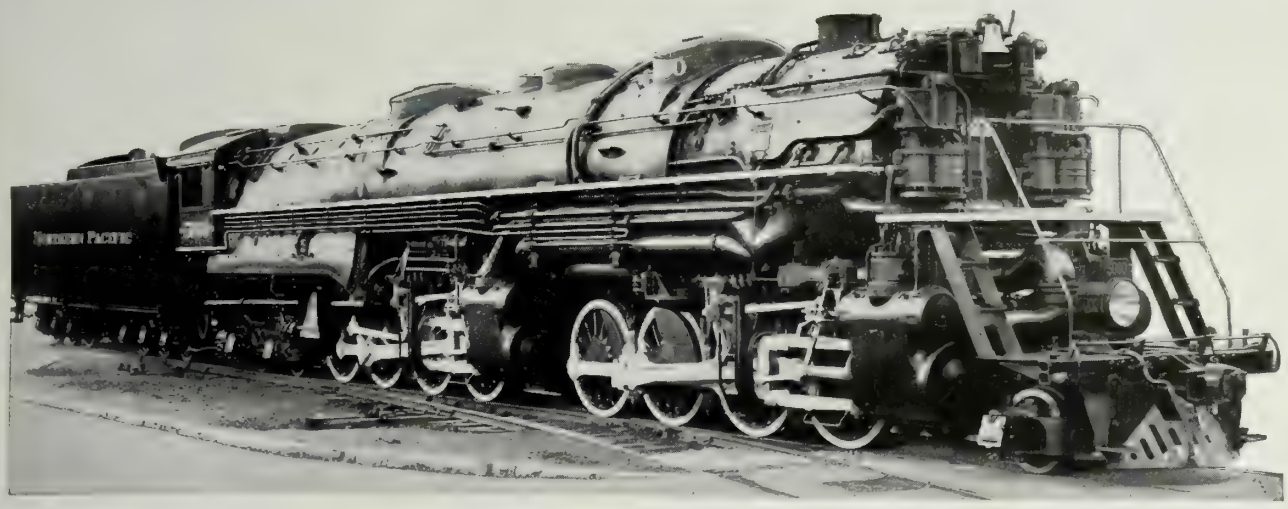
This proposed linking of the Great Northern and the Western Pacific is a logical consequence of the recently accomplished completion of the Great Northern into the heart of the Klamath Basin and is in accord with the progressive plans of the Western Pacific to extend its lines in California and to acquire existing lines, thus increasing its usefulness in serving and upbuilding the West.

Railroads Own the Express Now

At midnight, February 28, the American Railway Express Company became the property of the railroads and adopted the new name of the Railway Express Agency, Inc.

The same officers and personnel will be maintained by the railroads and business will proceed as usual.

All the trunk line railroads, with the exception of the Southern Railway, participated in the purchase of the express



Silas Zwight, *Gen. Mech. Supt.*

Weight Engine & Tender . 1,116,000 lbs. Tractive Power . . . . . 153,300 lbs. Grate area . . . . . 182 sq. ft.
Firebox length . . . . . .22′ 2⅛″ Firebox width . . . . . 9′ 6¼″

Confidence

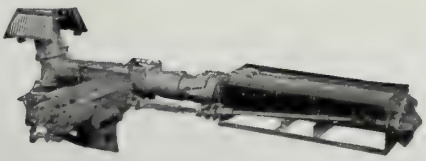
THE above illustrates the latest development in large locomotives, and is an outstanding example of confidence in the one accessory on which the successful performance of the locomotive must depend, viz., the Standard Modified Type "B" Stoker.

This can be better appreciated when we take into consideration the fact that the Stoker may at times be called upon to crush and deliver 45,000 lbs. of coal per hour, or 750 lbs. per minute, and distribute this evenly over 182 square feet of grate area.

This confidence is based on past performance of the Type "B" Stoker on other locomotives in service on the Northern Pacific Railway.

THE STANDARD STOKER COMPANY, INC.

New York Chicago Erie Pittsburgh



Type "B" Stoker

company. The Southern Railway has its own express company. The sale of the express involved a consideration of between $30,000,000 and $31,000,000.

The Woes of Poverty

Believe it or not, and it does seem impossible, the transportation property known as the Pennsylvania Railroad System is worth more than two and one-half billion dollars! It was worth that at the end of the year just torn off the calendar, and probably is worth a few dollars more by this time. The astounding information is official. It is found in the general balance sheet of the company as of December 31, 1928. That imposing exhibit shows the investment in road and equipment at the end of 1928 was $1,131,409,844, an increase in 12 months of $45,936,363. The increase was due to improvements and betterments to the physical property made during the year. The figures are only for the directly owned lines of the Pennsylvania and those leased lines on which the company bears the cost of improvements. They do not include the property investment of the other leased and affiliated lines, which make up the entire Pennsylvania Railroad System, the total of which, at book figures, is over 2½ billions, and on the basis of physical valuation in excess of three billions.

The strong cash position of the company is indicated by the fact that its quick assets, consisting of cash or its equivalent, immediately available for any corporate use, amounted to $93,925,400. Current assets were $126,180,063, as against current liabilities of $76,582,583.

Materials and supplies on hand at the end of the year amounted to $40,547,730. The extent to which greater efficiency and economy in the purchasing and stores work has been carried may be judged from the fact that on December 31, 1920, this same item stood at $98,443,616. The working capital tied up in that form has therefore been more than cut in half.

On the liability side of the balance sheet the capital stock at the close of the year stood at $561,673,950, an increase of $62,408,250. The increase represented the allotments to stockholders made during the year. It does not include any of the $17,500,000 allotted to employes, as this stock is being sold only upon installment deductions from payrolls and none has yet been paid in full or issued.

Total corporate surplus at the close of the year amounted to $474,293,803, consisting of $288,972,252 in total appropriated surplus, and $185,321,551 in free profit and loss balance. The latter showed an increase for the year of $35,899,764, which was used to add to the value of the company's property and assets and provide betterments, sustaining and strengthening the company's credit.

Revenue Loading Higher Than Year Ago

Loading of revenue freight for the week ended February 23 totaled 907,337 cars, the car service division of the American Railway Association has announced. Due to the observance of Washington's birthday, this was a decrease of 50,714 cars below the preceding week this year with decreases being reported in the total loading of all commodities except coke, which showed a small increase. The total for the week of February 23 was an increase of 37,920 cars over the same week in 1928.

Miscellaneous freight loading for the week totaled 325,924 cars, an increase of 16,248 cars above the corresponding week last year and 1,724 cars over the same week in 1927.

All districts except the Southern and Northwestern reported increases in the total loading of all commodities compared with the same week in 1928 while all except the Eastern, Pocahontas and Central Western districts reported decreases compared with the same period in 1927.

Cinder Dicks to Meet Next Month

The spring meeting, Atlanta sectional committee, Protective Section, American Railway Association, will be held in the Pompeian Room, Hotel Biltmore, Atlanta, Ga., April 15, at 9:30 a.m. The annual meeting of the American Railway Association, Protective Section, will be held in the same hotel, April 16 to 18.

Cutting Down the Fuel Bill

A new low record in fuel conservation by road locomotives was established by the railroads in 1928, according to complete reports for the year just compiled by the carriers. An average of 127 pounds of fuel was required in 1928 to haul one thousand tons of freight and equipment, including locomotive and tender, one mile. This was the lowest average ever attained by the railroads since these reports began in 1918, being a reduction of four pounds under the best previous record in 1927.

The railroads also made a new low record in the conservation of fuel used in passenger service, an average of 15 pounds being required to haul a passenger train car one mile, compared with 15.4 pounds in 1927.

The total fuel bill for road and yard switching service in 1928 was $342,327,567 compared with $373,001,839 in 1927. The railroads used 111,572,184 tons of coal in 1928 for road and yard switching service. In 1927 they used 115,117,577 tons. The roads also consumed in road and yard switching service during 1928 2,442,790,701 gallons of fuel oil compared with 2,376,644,528 gallons in 1927.

Pacific Railway Club Nominations

The following have been nominated as officers of the Pacific Railway Club during the club year beginning March 14: President, J. P. Quigley, superintendent of transportation and telegraph of the Western Pacific; first vice president, K. C. Ingram, general advertising manager of the Southern Pacific; second vice president, J. P. Potter, vice president of the Key System Transit Co.; treasurer, Lacy L. Galbraith, conductor for the A. T. & S. F. The Pacific Railway Club will enter its thirteenth year with a thousand members, according to a statement made by J. P. Quigley, chairman of its membership committee at the club's February meeting. The actual membership now is 998.

Western Air Express to Kansas City

The vast network of air passenger lines which is rapidly covering the nation will be added to shortly after May 1 when a 1400-mile stretch of some of the nation's most interesting territory will be tapped by a new line between Kansas City and Los Angeles. The Western Air Express is rapidly making all details preparatory to dispatching its first planes from each terminal simultaneously.

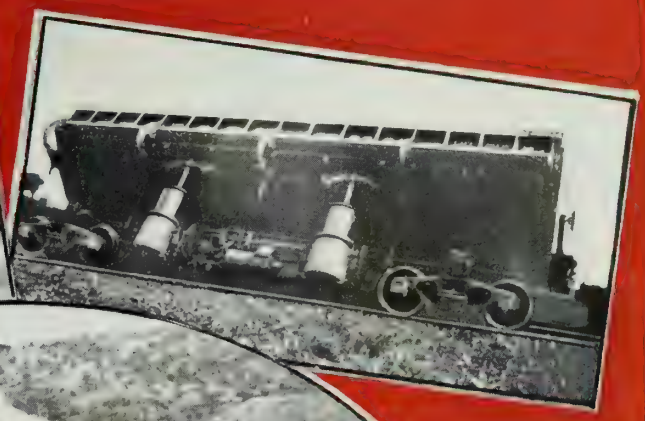
New Hotel for B. & M.

Plans for a 16-story, 500-room hotel of most modern design, to connect with and flank the New North Station on the west and to be operated under nationally known management, are announced by the Boston & Maine. Erection of the hotel will complete the $10,000,000 terminal development in Causeway street of which the New North Station with the Boston Garden above it is the central unit. The new hotel is to cost $2,500,000 and will contain up-to-the-minute facilities. There will be a ground floor cafeteria and dining room, reached directly from the station concourse and from the street, in addition to a main dining room, private dining rooms and a banquet hall on floors above. Every sleeping room will be large with outside exposure, and will have bath and shower and running ice water. The architects are to be Funk & Wilcox Co. of Boston, who designed the North Station and Boston Garden, with George B. Post & Sons of New York, hotel specialists, as consultants.

The Western Pacific Program

The program of the Western Pacific

They Save Their Own Cost



MAGOR two-way side hinged dump cars have many distinctive features of design which insure efficient and economical dump car operation. The big savings of time and labor on a wide variety of maintenance and construction work return quickly the cost of the cars.

The cars can be dumped to either side automatically. The load is discharged clear of the track. Stability on track, flexibility of operation, positive dumping action and easy access of control mechanism add to the safe and efficient dumping of all bulk materials.

Magor Car Corporation
50 Church St., New York

MAGOR *Automatic Air Dump* CARS

and its subsidiary lines in 1929 for improvements in existing roadway and equipment will involve an expenditure of approximately $3,500,000. This does not include projects for new lines under way or decided upon. The program contemplates an expenditure for improvements and maintenance, outside of ordinary maintenance, of $3,000,000 of which $1,400,000 is chargeable to operating expenses and $1,600,000 will be new money. Principal items are: improvement in freight train equipment, etc., $1,000,000; bank widening and ballasting, $890,000; extension of yards and lengthening of passing tracks, $230,000; three steel bridges in Nevada to replace wooden structures, $85,000.

Net in 1928 Some Higher

Class I railroads in 1928 had a net railway operating income of $1,193,133,741 which was a return of 4.71 per cent on their property investment, according to complete reports for the year just filed by the carriers with the bureau of railway economics. Their net railway operating income in 1927 was $1,085,141,596 or 4.38 per cent on their property investment. The ratio of expenses to gross revenues during the past year was the lowest for any year since 1917. The ratio was $72.40 per every hundred dollars of gross revenues in 1928 compared with $74.54 in 1927 and $73.14 in 1926.

The effect of increased economies from improved operating methods, the more prompt movement of freight, fuel conservation, better physical condition of equipment and operation of longer trains due to installation of more powerful locomotives is reflected especially in the reduction in transportation expense. Such expense in 1928 amounted to $2,097,151,101, a reduction of $70,415,146 or 3.2 per cent compared with 1927.

Expenditures for maintenance of way and structures in 1928 amounted to $845,612,454, a decrease of $33,883,739 or nearly four per cent compared with 1927 while expenditures for maintenance of equipment amounted to $1,174,424,259, a decrease of $54,795,143 or 4.5 per cent.

Passenger traffic in 1928 was the smallest for any year in the past twenty. Passenger revenue in 1928 amounted to $900,326,854, a decrease of $75,858,762 or 7.8 per cent compared with 1927.

Gross operating revenues of the Class I railroads in 1928 amounted to $6,177,761,036 compared with $6,210,029,786 in 1927 or a decrease of five-tenths of one per cent. Operating expenses in 1928 totaled $4,472,480,262 compared with $4,628,725,903 in 1927 or a decrease of 3.4 per cent.

Class I railroads paid $395,066,480 in taxes in 1928, an increase of $13,467,890 or 3.5 per cent over the total tax bill of 1927. Thirteen Class I railroads operated at a loss in 1928, of which six were in the eastern, two in the southern and five in the western district.

C. & O. to Spend Millions

Improvements, extensions and betterments, at an approximate expenditure of $18,403,000, will be made by the Chesapeake & Ohio at various points on its system, according to announcement by W. J. Harahan, president. These improvements include additional shop facilities, trackage, engine terminal facilities, freight and passenger depots, and grade crossing separations. Practically every part of the system will be benefited. Preliminary plans for the work have been completed, and actual construction will begin without delay. The expenditures are made under authority granted recently by the Interstate Commerce Commission on the company's application to capitalize past expenditures for improvements for the purpose of reimbursing the company's treasury.

These improvements will give greatly needed additional facilities for increased business, and will produce noteworthy operating economies.

Large Signal Orders by the Santa Fe

The Santa Fe System has placed an order for material providing about 625 miles of automatic block signaling to be supplied by the Union Switch & Signal Co. This is said to be one of the largest signal orders given for years. It includes signaling material for about 95 miles on eastern lines; 460 miles, western; 43 miles on Gulf lines and 26 miles on Coast lines. The Union Switch & Signal Co. also is to install a system of visible and audible cab signals on Pennsylvania Railroad line between Philadelphia and Washington at estimated cost of $1,700,000.

Associated Traffic Clubs to Meet

The seventh yearly convention of the Associated Traffic Clubs of America will be held April 10 and 11 in New York at the Park Central Hotel.

Railway Construction

Tracks and Yards

ARKANSAS.—The Arkansas Western has asked permission to build a 23.5-mile extension from Waldron into the southeast part of Scott county.

CALIFORNIA.—Permission has been granted the Northwestern Pacific to abandon a 36-mile branch between Point Reyes and Monte Rio.

COLORADO.—The Colorado Railroad has applied for permission to extend its Ingleside branch 4.7 miles in Larimer county. It is to be operated under lease by the Colorado & Southern.

KENTUCKY.—The Louisville & Nashville has applied for permission to construct a 7.5-mile extension of its Left Fork branch from Fox Ridge up the left fork of Straight Creek.

MASSACHUSETTS.—The New Haven has permission to abandon passenger ferry service between New Bedford and Fairhaven on condition that it furnish motor transportation between the New England Steamship pier at New Bedford and Fairhaven for passengers holding through tickets.

MICHIGAN.—The Chicago & North Western has permission to build a 5-mile extension to its Marenisco branch in Gagebic county, to cost $121,466.

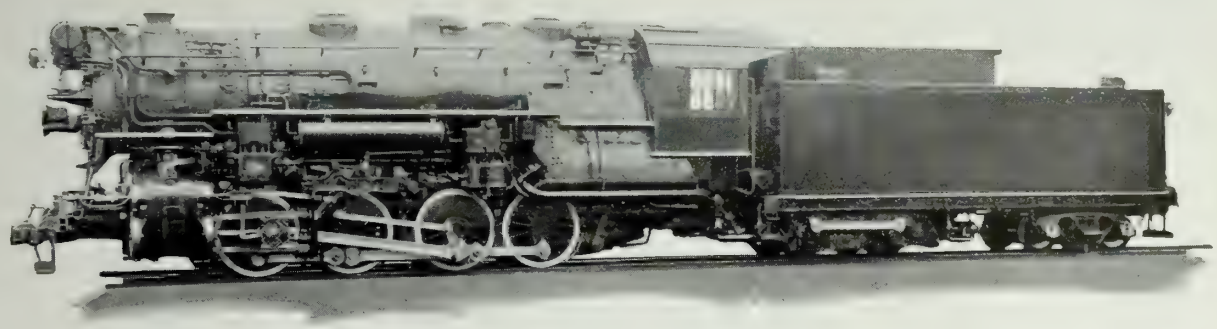
—The Pere Marquette plans these improvements for 1929: yard improvements and track extensions at Wyoming to cost $300,000; yard improvements at Ludington to cost $50,000; main line relocating at New Richmond to cost $60,000; second track construction between East Saugatuck and Boyd to cost $50,000; a four-track viaduct over tracks of the Michigan Central at Southern avenue, $200,000; a third and fourth main track between Oakman boulevard and Rougemere to include interlocking plants and signals, $200,000; and additional yard trackage $100,000.

MISSOURI.—The Missouri Southern has authority to construct an 18-mile extension in Reynolds and Shannon counties, to cost $167,200.

OHIO.—The Chesapeake & Ohio expects to construct four miles of second main track between Sciotoville and Wheeler to cost $961,000.

SOUTH DAKOTA.—The Chicago & Northwestern has asked for permission to build a 33-mile extension from Winner to Wood.

TEXAS.—It is reported the Santa Fe



Extending Switch Engine Capacity

MORE powerful switchers are a natural requirement of modern operation. To handle the longer trains brought in by big locomotives greater tractive power is needed.

But it is important to keep Switchers flexible. To secure the added power without increasing engine weight or using more wheels, many roads are turning to The Locomotive Booster.

The same Locomotive Booster in use on nearly 3,000 road locomotives is applied to the tender of the switch engine. No new parts are required except for the truck itself.

Roads using it find The Locomotive Booster on a six wheel switcher gives the power of an eight wheel switcher with a great increase in flexibility and economy in operation.

FRANKLIN

RAILWAY SUPPLY COMPANY, INC.

The Locomotive Booster Capitalizes Idle Weight and Spare Steam

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO MONTREAL

is planning a 65-mile extension on the Kansas City, Mexico & Orient from San Angelo to Sonora, the grading of which was completed by the Orient some time ago.

—The St. Louis Southwestern plans to spend $3,683,300 in 1929 for revision of line and reduction of grades between Mt. Pleasant and Waco.

WEST VIRGINIA.—A. Guthrie & Co., St. Paul, has a contract from the Nicholas, Fayette & Greenbrier for a 28-mile line from a connection with the New York Central at Swiss to a connection with the Loop & Lookout at Nallen. The contract includes two tunnels, one 3,300 ft. and one 900 ft.

Buildings and Structures

INDIANA.—Peru. As a part of its general improvement program for 1929 the Chesapeake & Ohio plans to relocate the freight station here and to build additional freight station facilities to cost about $22,000. Light repair tracks to have the capacity of 133 cars and to cost $90,500 are also being planned.

KANSAS.—Herington. The Rock Island has awarded a contract to the Roberts & Schaefer Co. for a 600-ton capacity, automatic electric three-track locomotive coaling plant with sanding facilities.

KENTUCKY.—Louisville. The Horace Williams Company, Louisville has a contract from the Louisville & Nashville for a brick and steel 100 by 400-ft. warehouse here to cost $230,000.

—Paintsville. The Chesapeake & Ohio is planning a $71,400, one story brick passenger station here, it is reported.

—Russell. The Hughes-Foulkrod Company, Pittsburgh, has a contract from the Chesapeake & Ohio for freight car shops here to cost $3,162,000.

MAINE.—Derby. The Bangor & Aroostock has awarded a contract to the Roberts & Schaefer Co. for a reinforced concrete locomotive coaling plant here.

MICHIGAN.—Ludington. The Pere Marquette plans to build two new car ferries for the Lake Michigan service and to construct a new slip and dock here. The estimated cost is $400,000.

MONTANA. — Whitefish. The Ogle Construction Co. has a contract from the Great Northern for a 500-ton capacity, three track, electrically operated, steel coaling station.

NEW YORK.—Buffalo. The Erie will be ready to receive bids about the middle of March for its new Elmwood avenue freight house here.

NEW YORK.—New York. The Pennsylvania has let a contract to Gibbs & Hill, Inc., N. Y. for the enclosure of the exit concourse at the Pennsylvania station in New York at about $150,000.

NORTH DAKOTA.—Williston. The Great Northern has let a contract to the Ogle Construction Co. for a 500-ton capacity, three track, electrically operated, steel coaling station.

PENNSYLVANIA.—Red Bank. The Ogle Construction Co., Chicago, has a contract from the Pennsylvania for a 500-ton four-track reinforced concrete electrically-operated coaling station and a gravity sand handling plant here.

WEST VIRGINIA.—Huntington. The Chesapeake & Ohio has let a contract to the United Engineers & Constructors, Philadelphia, for locomotive shop improvements to cost $3,493,400.

Improvement in Equipment Orders

In our January issue we said, "There is no doubt that a broader policy and more liberal buying of locomotives and cars during 1929 than prevailed in 1928 will not only prove beneficial to industry at large but also will show its wisdom in ultimate operating costs." Our records show that during the last three months there has been a decided increase in purchases both as compared with the previous months and with the same months in 1928. During the past three months a total of 272 steam locomotives have been ordered for use in the United States from the three largest builders and inquiries are still pending for over 100. This compares with a total of 449 ordered in 1928.

Orders for over 44,000 freight cars have been placed during the last three months and inquiries are still pending at the time this is written for close to 10,000 additional cars. This compares with a total of 64,591 cars ordered during the entire year 1928.

Locomotive Orders

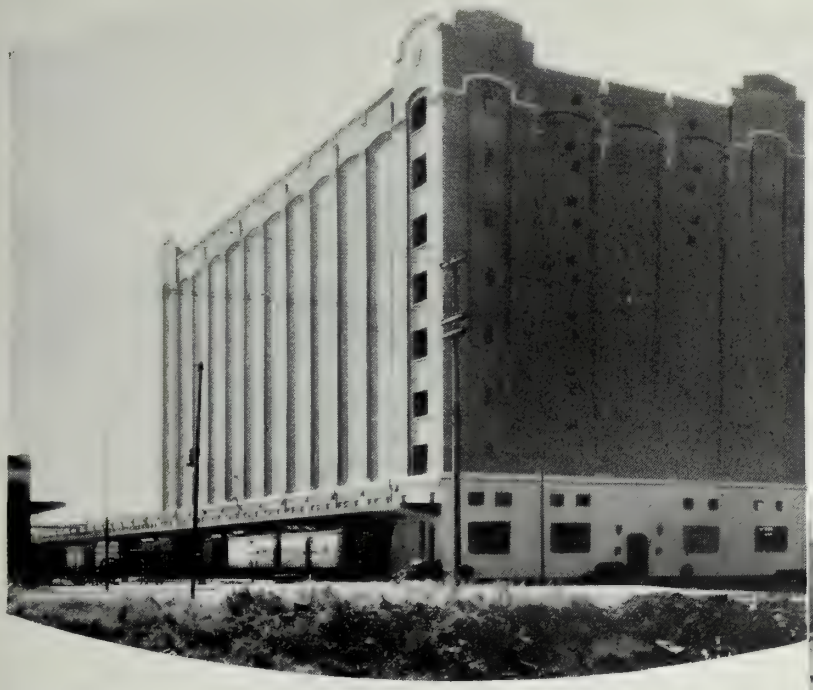
The most important development in the locomotive industry, since our February issue, has been the announcement that the Erie Railroad will purchase 20 heavy freight locomotives of the design designated as the Berkshire type; 15 heavy switchers, and that the road will increase the capacity and modernize 40 of its existing engines. The Central R. R. of New Jersey has entered the market for five switch engines, and the New York, Ontario & Western for ten of the 4-8-2 type, and six locomotive tenders. Other inquiries since our last issue are: Illinois Terminal Railroad System, three Mikados; Pere Marquette, ten switchers; Rutland, three Pacific type; Tientsin-Pukow, Tientsin, Hopei, China, ten Mikados; Tsingtan Tsinan Railroad, five 2-8-0 type; Royal State Railways of Siam, six Garrett type.

The Boston & Maine has ordered five 2-8-4 type locomotives from Lima similar to the ones ordered last year; the Chicago, Milwaukee, St. Paul & Pacific, 4 4-6-4 type and one 4-8-4 type from Baldwin; Green Bay & Western, two 2-8-0 type from American; Illinois Central, four electric locomotives from Westinghouse; Nevada Consolidated Copper Co., one consolidation type from American; Newfoundland Railway, two Pacific type from American; South African Railways, eight Pacific type and four Mountain type from Baldwin; Union Pacific, 25 4-12-2 type and 20 tenders from American; Western Pacific, five Mikados from American.

Passenger Car Orders

Orders for passenger cars placed since the February issue of Transportation include the following: Santa Fe, two dining cars with Pullman Car & Mfg. Corpn.; Canadian National, three baggage and mail cars with American Car & Fdy. Co., and two parlor-buffet cars with Pullman Car & Mfg. Corpn.; Chesapeake & Ohio, 12 express cars with Pullman Car & Mfg. Corpn.; Detroit & Mackinac, one passenger, baggage and mail gas-electric rail motor car with J. G. Brill Co.; Great Northern, one gas-electric rail motor car with J. G. Brill Co.; Huntington & Broad Top Mountain Railroad & Coal Co., one passenger and baggage gas-electric rail motor car with J. G. Brill Co.; Illinois Central, ten coaches and eight chair cars with American Car & Fdy. Co., five baggage and express and five horse express cars with St. Louis Car Co.; Lehigh & Hudson, one combination coach with Bethlehem Steel Co.; Richmond, Fredericksburg & Potomac, one gas-electric rail motor car and one trailer with J. G. Brill Co.; South Australian Railways, eight gasoline rail motor cars with J. G. Brill Co.; Southern Pacific, ten lounge cars and three observation cars with Pullman Car & Mfg. Corpn. The Rock Island ordered one passenger, baggage and mail gas-electric rail motor car from the Standard Steel Car Co. equipped with a Sterling gasoline engine and a Westinghouse motor and generator, two passenger, baggage and mail cars and seven power cars from the St. Louis Car Co., equipped with Electro-Motive gasoline engines and General Electric motors and generators. The Chicago Surface Lines ordered 100 truck sets and 33 car bodies from J. G. Brill Co., 33 car bodies from Cummings Car & Coach Co., and 34 car bodies from their own shops.

The Baltimore & Ohio is inquiring for



PENNSYLVANIA RAILROAD
COLD STORAGE BUILDING
Philadelphia, Pa.

BOSTON & MAINE RAILROAD
FRUIT EXCHANGE
Charlestown, Mass.

PRODUCE TERMINALS
COLD STORAGE WAREHOUSES

BALTIMORE & OHIO RAILROAD—READING COMPANY
PRODUCE BUILDING AND AUCTION ROOM
Philadelphia, Pa.

THE 45-years experience of this organization in the design and construction of railroad work of every character includes the following produce terminal work:

PERISHABLE PRODUCTS TERMINAL at Philadelphia for the Baltimore & Ohio Railroad and the Reading Company.

COLD STORAGE WAREHOUSE at South Philadelphia for the Pennsylvania Railroad.

FRUIT EXCHANGE at Charlestown, Mass., for the Boston and Maine Railroad.

Our experience in the construction and design of produce terminal work is available to railroads in need of more adequate terminal facilities.

Inquiries are invited without obligation

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DWIGHT P. ROBINSON, PRESIDENT

NEW YORK PHILADELPHIA NEWARK CHICAGO
ATLANTA LOS ANGELES BUENOS AIRES RIO DE JANEIRO

100 express cars, ten mail and baggage cars, 15 baggage cars, five dining cars and seven parlor cars; Chicago & North Western, five baggage and mail cars; Erie, 30 suburban coaches; Northern Pacific, five mail and express cars. It is reported the Cleveland Railways will purchase 100 new street cars, Montreal Tramways, 50 cars, and the Illinois Power Co., Springfield, Ill., 10 new street cars.

Freight Car Orders

A decided improvement in freight car purchases has been recorded since our February edition. The largest inquiries were those of the New York Central which entered the market for 4,300 cars and the Erie which asked for prices on 2500. The largest order was that of the Milwaukee which totaled 4,150. The Erie's inquiry is for 1000 hopper, 500 gondola, 500 box and 500 automobile cars. The New York Central's is for 1000 steel box, 1500 gondola, 1000 automobile, 500 hopper and 300 flat cars. Nashville, Chattanooga & St. Louis is inquiring for 150 flat bottom gondolas and 50 hopper cars; Nevada Consolidated Copper Co., 10 air-dump cars, Northern Pacific, 500 automobile and 200 flat cars; Mississippi Central, 50 automobile and 50 box cars; Southern Pacific, 250 tank, 65 gondola and 50 caboose cars; Union Tank Car Co., from 300 to 600 tank cars; South African Railways, 300 cattle wagons; International Harvester Co., 16 hopper cars, Carnegie Steel Co., 22 mill type gondola car bodies; Rock Island, 500 steel underframes for box cars to be built in its Armourdale, Kan. shops; Republic Iron & Steel Co., 73 gondola car bodies; Royal State Railways of Siam, 51 bogie wagons. It is reported that the Fort Worth & Denver City is contemplating the purchase of 100 new or rebuilt gondola cars. The St. Louis-Southwestern may enter the market for 1500 cars.

The Milwaukee's order was for 1000 ballast cars placed with General American Car Co., 1000 automobile cars with Bettendorf Company, 500 automobile cars with Pullman Car & Mfg. Corpn., 200 automobile cars with Pacific Car & Fdy. Co., 650 stock cars with Standard Steel Car Co., 300 ore cars and 150 flat cars with Pressed Steel Car Co. and 350 flat cars with Ryan Car Co. The Chesapeake & Ohio ordered 1500 gondola cars from American Car & Fdy. Co., 500 gondola cars from Richmond Car Works and 500 ventilated box cars from Pressed Steel Car Co.; Maine Central, 1000 box cars from Standard Steel Car Co.; Missouri Pacific, 500 box cars from American Car & Fdy. Co., and 500 automobile cars from Mt. Vernon Car Mfg. Co.; Texas & Pacific, 700 automobile cars from Pressed Steel Car Co., 300 automobile cars from American Car & Fdy Co., 500 stock cars and 50 caboose underframes from Pullman Car & Mfg. Corpn.; Lehigh Valley, 500 hopper cars and 200 gondolas from Bethlehem Steel Co.; American Smelting & Refining Co., 25 gondola cars from Magor Car Corpn.; American Steel Foundries, three air dump cars from Magor Car Corpn.; Andes Copper Co., 10 flat cars from Koppel Industrial Car & Equipment Co.; Santa Fe, 200 flat cars from American Car & Fdy. Co.; Chile Exploration Co., 80 ore cars from Pressed Steel Car Co.; Illinois Central, 25 caboose cars from American Car & Fdy. Co.; Soo Line, 200 box cars from Pullman Car & Mfg. Corpn. and 200 box cars from Standard Steel Car Co.; Missouri-Kansas-Texas, 50 hopper cars from Standard Steel Car Co.; Pere Marquette, 100 Hart selective ballast cars from American Car & Fdy. Co.; South Manchurian, Darien, Manchuria, 30 air-dump cars from Magor Car Corpn., Sun Oil Co., Philadelphia, 340 tank cars from Standard Steel Car Co.; Union Refrigerator Transit, 50 refrigerator cars from American Car & Fdy. Co.; Wheeling & Lake Erie, 100 flat cars from Standard Steel Car Co.; Frisco, 300 steel underframes from Pullman Car & Mfg. Corpn.; St. Louis-Southwestern, 15 caboose underframes from Virginia Bridge & Iron Co. The Norfolk & Western has placed orders with the Ralston Steel Car Co. for rebuilding 1000 all-steel hopper cars and the Virginia Bridge & Iron Co. for rebuilding 1000 all-steel hopper cars; Carnegie Steel Co., repairs to 178 hopper cars with Greenville Steel Car Co., repairs to 160 hopper cars with Pressed Steel Car Co., repairs to 160 hopper cars with American Car & Fdy. Co.

Bus and Truck Orders

Recent bus orders and deliveries include the following: Chicago & Joliet Transportation Co., Joliet, two 29-passenger Mack parlor car buses; Chicago & West Towns Railway Co., five Mack bus chassis and one 29-passenger Mack city type bus; Connecticut Co., four 29-passenger Mack city type buses; Des Moines Winterst Bus Co., one Mack chassis with 21-passenger Lang parlor car body; Dixie Motor Coach Corpn., Dallas, six Mack chassis with 25-passenger Lang parlor car bodies; Eastern Public Service Corpn., Washington, D. C., three White buses equipped with Bender 29-passenger Pullman of the Highway bodies; Great Lakes Stages, Cleveland, five Twin Coach parlor coaches; Heidlebaugh Transportation Co., Long Beach, Cal., two Mack parlor observation cars; Los Angeles Railway Corpn., four Twin Coach urban coaches; Missouri Pacific Transportation Co., two 29-passenger White coaches, four 29-passenger A. C. F. coaches, five 21-passenger Reo coaches, five 21-passenger and four 27-passenger coaches from General Motors, and two 22-passenger Studebaker coaches; Pittsburgh Railways, six 21-passenger Yellow parlor coaches; Plymouth & Brockton Street Ry. Co., one 29-passenger Mack city type bus; Public Service Coordinated Transport, Newark, 288 Yellow Coach buses; Sacandaga Valley Transportation Co., one Mack chassis; Southern Pacific Motor Transport Co., nine 25-passenger Fageol parlor type coaches, three 31-passenger Fageol coaches, 5 type W Yellow coaches and one type Y Yellow coach; Springfield Street Railway, three Mack chassis; Syracuse Railway Coordinated Bus Line, nine Mack chassis; Tri-City Railway, Davenport, one 29-passenger Mack suburban type bus.

Changes in Personnel

Executive and Operating

John J. Pelley, president of the Central of Georgia, on March 1 became president of the New Haven, succeeding the late Edward J. Pearson. The presidency of the New Haven has been vacant since Mr. Pearson's death December 7, 1928. **Edward G. Buckland,** vice president in charge of law, finance and corporate relations, was elected chairman of the board of directors January 3, with authority to exercise the powers and perform the duties of president until such time as a new president was chosen. **Albert E. Clift,** senior vice president of the Illinois Central, has been elected president of the Central of Georgia, a subsidiary of the Illinois Central, to succeed Mr. Pelley. Mr. Pelley, a railroader for 29 years, was born at Anna, Ill., 1878. He began his railway service at the age of 21 as a station clerk for the Illinois Central. He became track apprentice in 1902 and was with that road continuously for more than 20 years, becoming general

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MAGNUS COMPANY, Incorporated
New York Chicago

John J. Pelley

superintendent of the northern lines in 1919. From 1920 to 1923 he was affiliated with the American Railway Association in the car service division, returning then to the Illinois Central as general manager, and becoming subsequently, vice president. He has been president of the Central of Georgia since 1926.

Mr. Clift has been in railway service for years, practically all of which has been spent with the Illinois Central. He was born in Illinois in 1869 and entered railway service as a call boy on the Illinois Central at Champaign, becoming later a freight brakeman and a conductor. Mr. Clift was made superintendent of the Freeport division in 1905, was transferred to the St. Louis division in 1907, and was promoted to general superintendent of the southern lines in 1910, which position he held until 1912. He was made general manager with headquarters at Chicago in 1917 and vice president in charge of operation in 1923.

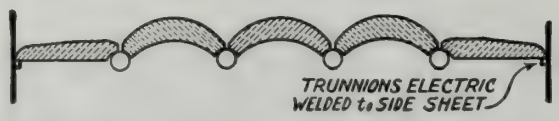
G. E. Patterson, general manager of the Illinois Central with headquarters at Chicago, has been appointed vice president in charge of operation with headquarters as before. **W. Atwill**, general superintendent of the northern lines, will succeed Mr. Patterson as general manager. **J. W. Hevron**, general superintendent of southern lines, has been appointed general superintendent of the northern lines to succeed Mr. Atwill, with headquarters in Chicago. **T. J. Quigley**, superintendent of the Illinois division with headquarters at Champaign, has been named to succeed Mr. Hevron as general superintendent of southern lines with headquarters at New Orleans. **E. D. Holcomb**, superintendent of the Springfield division, with headquarters at Clinton, Ill., has been named to succeed Mr. Quigley at Champaign. **J. W. Kern, Jr.**, has been appointed superintendent of the Springfield division at Clinton to succeed Mr. Holcomb.

Albert E. Clift

TRUE ECONOMY

Can be Secured in Steam Locomotives

by the use of



ECONOMY BAFFLE WALLS

THEY INSURE MAXIMUM LIFE OF BRICK WITH A MINIMUM WEIGHT ON THE ARCH TUBES

THE ECONOMY METHOD of SUPPORTING SIDE BRICK on TRUNNIONS ELECTRICALLY WELDED to the SIDE SHEET ELIMINATES the liability of the side brick dropping into the fire bed and the necessity of straightening or replacing bent arch tubes.

THE ECONOMY METHOD provides radiant heat near the side sheets, causing more complete combustion in this "COLD" area. It also PREVENTS the accumulation of coke and slag in the "pockets" resulting when inclined side brick are used, thus increasing the active firebox heating surface.

ECONOMY ARCH COMPANY

1843 RAILWAY EXCHANGE BUILDING ST. LOUIS, MISSOURI

Distributors of Locomotive Arch Brick Manufactured by
EVANS & HOWARD, LACLEDE-CHRISTY, A. P. GREEN and NILES FIREBRICK COMPANIES

E. H. Dresser, chief engineer of the Duluth, Missabe & Northern, has been elected a director to succeed **J. W. Kreitter,** who recently retired from active service as superintendent.

A. H. Stone has been elected vice president of the Columbus & Greenville, with headquarters at Columbus, Miss.

Petrus Pearson has been appointed general manager of the Port Angeles Western, with headquarters at Port Angeles, Wash.

A. R. Taylor, superintendent at Little Rock of the Arkansas division of the Missouri Pacific, has been appointed inspector of transportation with headquarters at St. Louis. **W. E. Lamb,** superintendent of the Louisiana division with headquarters at El Dorado, Ark., has been named to succeed Mr. Taylor at Little Rock. **C. F. Dougherty,** assistant superintendent on the Louisiana division, has been appointed superintendent of that division to succeed Mr. Lamb. **E. B. Stevenson,** trainmaster on the Little Rock division with headquarters at McGehee, Ark., has been named assistant superintendent of the Louisiana division to succeed Mr. Dougherty.

A. P. Leddon has been appointed general manager of the Alabama, Florida & Gulf, with headquarters at Dothan, Ala.

J. W. Muessen, vice president of the Chicago, Springfield & St. Louis, with headquarters at Springfield, resigned February 9, but will continue in an advisory capacity until April 1.

Sir Charles Gordon, G. B. E., president of the Bank of Montreal, has been appointed a director of the Canadian Pacific succeeding **J. K. L. Ross,** resigned. **F. L. Beique** has been appointed a member of the executive committee of the board of directors.

Thomas S. Acheson, general agricultural agent of the western lines of the Canadian Pacific, with headquarters at Winnipeg, resigned February 14. Mr. Acheson will be succeeded by **J. M. McKay,** superintendent of the Saskatoon division of the Saskatchewan district with headquarters at Saskatoon. Mr. McKay will be succeeded by **M. A. MacGregor,** superintendent of the Portage division of the Manitoba district with headquarters at Winnipeg. **W. E. Kingston,** assistant superintendent at Winnipeg has been promoted to succeed Mr. MacGregor.

The St. Louis-San Francisco announces that **E. A. Teed,** assistant superintendent at Chaffee, Mo., has been appointed superintendent of terminals at Birmingham to succeed **J. W. Skaggs** who has been transferred to Kansas City to succeed **J. M. Flanigan,** retired.

L. C. Smallwood has been elected president of the Tennessee, Alabama & Georgia with headquarters at Chattanooga to succeed **Webster James.**

John McCray, assistant to the vice president and general manager of the Detroit & Mackinac, has been elected second vice president and auditor, with headquarters as before at East Tawas, Mich.

John D. MacNutt, acting superintendent of the Canadian National, with headquarters at Campbellton, has been appointed superintendent with the same headquarters.

J. R. Brown, car accountant of the Lehigh & New England, with headquarters at Bethlehem, Pa., has been appointed superintendent of car service. The position of car accountant has been abolished.

Charles T. O'Neal has been appointed general manager in charge of operation and maintenance of the Buffalo, Rochester & Pittsburgh, with headquarters at Rochester. Mr. O'Neal entered railway service in 1890 as a clerk on the Philadelphia & Reading. In 1923 he was appointed to the position from which he resigned to join the Buffalo, Rochester & Pittsburgh, that of vice president of the Fort Smith & Western, with headquarters at Fort Smith, Ark.

C. W. Cornell has been elected president of the Pacific Electric Motor Transport Co., Los Angeles, organized to

HUNT-SPILLER AIR FURNACE GUN IRON

FOR THE PRINCIPAL WEARING PARTS OF A LOCOMOTIVE

1. Cylinder Bushing
2. Cylinder Packing
3. Piston—Piston Bull Ring
4. Valve Bushing
5. Valve Packing
6. Valve Bull Rings
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10. Driving Boxes

BECAUSE OF ITS WEAR-RESISTING QUALITIES

HUNT-SPILLER AIR FURNACE GUN IRON is being applied with increasing demand to the wearing parts of cylinders, pistons, piston bull rings, cylinder packing.

Apply it to the above parts of your locomotives and get high quality of service from this superior wear-resisting material.

Made only by

HUNT-SPILLER MFG. CORPORATION

J. G. PLATT, PRES. & GEN. MGR. V. W. ELLET, VICE-PRESIDENT

Office and Works

383 Dorchester Avenue - South Boston, 27, Mass.

provide a delivery freight service in co-ordination with existing rail lines. Other officers are **L. B. Young**, manager; **L. E. St. John**, secretary-auditor, and **J. L. Smale**, treasurer.

Financial & Legal

L. O. Todd, assistant auditor of the Georgia & Florida, has been elected auditor with headquarters as before at Augusta. He will succeed **M. T. Lanigan**, deceased. Mr. Todd was previously elected assistant secretary. **H. C. Baird** has been appointed assistant auditor, with headquarters at Augusta.

Roger P. Almond has been appointed general attorney of the Kansas City, Mexico & Orient in Kansas and Oklahoma, with headquarters at Wichita.

The New York Central announces that **C. C. Handy** has been appointed general attorney with headquarters at Cleveland.

F. J. Fell, Jr., controller of the Pennsylvania with headquarters at Philadelphia, and **A. P. Burke**, treasurer of the Big Four, with headquarters at Cincinnati, also have been elected to corresponding positions on the Central Indiana.

The Southern Pacific announces that **R. E. Currie** has been appointed auditor of valuation with headquarters at San Francisco.

A. C. Armstrong, general auditor of the Illinois Terminal System, has been named assistant controller, with headquarters at St. Louis, and the position of general auditor has been abolished.

Robert H. Adams

P. M. Gervig, auditor of the steam lines has been appointed auditor of the system with headquarters at Alton. The positions of auditor of disbursements, auditor of freight accounts and auditor of passenger accounts have been abolished and the duties consolidated with the position of auditor.

The Katy announces that **C. D. Pantle**, general accountant, has been appointed assistant auditor, with headquarters as before at St. Louis.

Purchases and Stores

Robert H. Adams, who has been appointed purchasing agent of the Los Angeles & Salt Lake, with headquarters at Los Angeles, has spent his entire railroad career of more than 28 years in the service of that company. He was born at Minneapolis in 1873 and when he was 28 entered railway service as purchasing agent of the Empire Construction Company, a corporation formed to build the San Pedro, Los Angeles & Salt Lake, now the Los Angeles & Salt Lake. When the road was placed in operation he was appointed purchasing agent of that company. He was appointed assistant purchasing agent, with headquarters at Los Angeles in 1916 and purchasing agent January 1, 1929.

J. J. McDonald, chief inspector of fuel, ties and timber of the Omaha, with headquarters at St. Paul, retired February 1.

WHAT SHALL IT BE?
Rough or Smooth Floors

There are definite economies in having first class and level platforms and baggage room, warehouse, and shop floors.

Heretofore, the repair of broken-out, rutty concrete has been time consuming, laborious, and bothersome, and therefore the repairing has been put off until such a time as a completely new floor was required.

And now—you can have quick floor repairs—with STONHARD RESURFACER—no chipping or chopping of the old concrete to make a bond—you can have a resilient, durable, shock resisting floor with STONHARD RESURFACER.

STONHARD RESURFACER, already popular with 30 major railroads and with thousands of leading industrial plants, can be placed in service within thirty-six hours.

Order a trial barrel of

STONHARD RESURFACER

on the basis of **Satisfaction or No Charge.**

That's how we introduced thousands of barrels to satisfied customers.

"Over the Rough Spots"—full of interesting facts on floor construction and maintenance—will be sent upon request without obligation.

STONHARD COMPANY

798 N. Delaware Ave., Philadelphia, Pa.

Philadelphia Detroit Cleveland San Francisco

Traffic

C. J. McDonald, manager of perishable freight traffic of the Southern Pacific has been appointed mail and express traffic manager with headquarters as before at San Francisco. **William C. Fitch,** freight claim agent at San Francisco, has been appointed to succeed Mr. McDonald. **Joseph R. Nixon,** assistant freight claim agent at San Francisco will succeed Mr. Fitch as freight claim agent. Mr. McDonald's entire railroad service has been with the Southern Pacific. He began as a stenographer at Houston in 1904 but soon won advancement in the transportation department. He became assistant superintendent of transportation for the company's Pacific lines in 1914, and was named assistant to the president in 1917 to serve on the railway war board. After the return of the railroad to private operation he took charge of perishable freight.

Omar N. Spain, general eastern passenger agent of the Chesapeake & Ohio, with headquarters at New York, has been appointed assistant general passenger agent at Richmond. Mr. Spain will be succeeded at New York by **C. B. Kincaid,** city passenger agent, Washington, D. C. who will in turn be succeeded by **E. N. Bailey,** city passenger agent at Richmond.

T. H. Lawrence, general passenger agent of the St. Louis Southwestern of Texas, with headquarters at Tyler, also has been appointed general passenger agent of the St. Louis Southwestern with headquarters as before. **C. M. Cootes,** assistant general passenger agent of the St. Louis Southwestern, also has been appointed assistant general passenger agent of the St. Louis Southwestern of Texas and his headquarters removed from St. Louis to Tyler.

C. J. McDonald
Manager Southern Pacific Mail and Express.

George Morton, assistant freight traffic manager of the Burlington has been appointed freight traffic manager with headquarters as before at Chicago. Mr. Morton has been in the service of that road for 46 years.

The Illinois Terminal announces that **H. G. Powell,** traffic manager of the team lines, with headquarters at Alton has been appointed general traffic manager of the system, with headquarters at St. Louis. **H. A. Tuohy,** traffic manager of the electrified lines, has been promoted to freight traffic manager with headquarters at St. Louis. **E. L. Bodge,** coal traffic manager has been named assistant freight traffic manager at St. Louis.

F. H. Hocken, assistant general freight and passenger agent of the Western Pacific at Salt Lake City has been transferred to San Francisco as assistant general freight agent to succeed **W. J. Shotwell,** deceased. The position of assistant general freight and passenger agent at Salt Lake City has been abolished. **P. J. Peckens** has been

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CHEMICALS FOR BOILERS
RAILROAD
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MARINE

We make these Chemicals for you-based on an analysis of water used in your boilers.

This is a Briquette — weighs one pound and has a minimum of moisture. Doesn't it appeal to you over the usual run of compounds?

PHILADELPHIA CHICAGO ST. LOUIS MONTREAL WINNIPEG
BUENOS AIRES MANILA AUSTRALIA

The
FAIR

Ever Use
FAIR
Rail Anti-Creepers
?

If You Have,
You Found
These Facts
Substantiated

SIMPLICITY
in Construction
in Application

AND

PERFORMANCE
UNEQUALLED

THE P.&M. CO.
CHICAGO NEW YORK

appointed general agent at Salt Lake City.

The New York Central announces that **W. T. Tannehill,** chief of the traffic bureau at Chicago, has been appointed assistant to the freight traffic manager, with headquarters at New York. **Charles Coughlin,** general agent of the freight department at Chicago has been named to succeed Mr. Tannehill as chief of the traffic bureau.

Roy A. Pearch, general agent in the passenger department of the Chicago & Alton at Chicago, has been promoted to general passenger agent at Chicago. He will be succeeded by **W. D. Cornell,** district passenger agent at Cincinnati. **Dan M. McNamara,** general agent in the passenger department at St. Louis, has been promoted to assistant general passenger agent, with headquarters as before. **P. K. Walden,** commercial agent at Milwaukee has been promoted to assistant general freight agent at Chicago.

H. A. Buck has been appointed general agent, passenger department, Union Pacific system, with headquarters in San Francisco.

William F. Hummel, general agent at Chicago for the Elgin, Joliet & Eastern and **K. M. Guenther** have been appointed assistant general freight agents there.

The Seaboard Air Line announces that **George B. Rice,** assistant freight traffic manager at Norfolk, has been appointed freight traffic manager in charge of the rate department at Norfolk, and the position of assistant freight traffic manager has been abolished.

F. W. Shappert, assistant to the senior vice president in charge of traffic of the Chicago & Illinois Midland retired February 1. The position has been abolished. **Vance H. Williams,** general agent at Chicago has been appointed traffic manager with headquarters at Springfield.

Mechanical

George Crowder, general foreman mechanical department of the Georgia & Florida, has been appointed superintendent motive power, with headquarters at Douglas, Ga., to succeed **W. H. Dyer,** deceased. Mr. Crowder has been with this road since 1907.

The New Haven announces that **D. P. Carey,** master mechanic of the Midland division, has been appointed superintendent of shops, with headquarters at Readville, Mass. He will be succeeded by **W. R. Sederquest,** master mechanic of the Old Colony division, with headquarters at Taunton, Mass. Mr. Sederquest will be succeeded by **J. B. Porter.**

The Lehigh Valley announces these appointments: **F. N. Hibbits,** who has resigned as superintendent of motive power with headquarters at Bethelehem, Pa., has been appointed consulting superintendent of the department. He will be succeeded as superintendent of motive power by **J. P. Laux,** superintendent of the Sayre shops. **D. W. Davis,** master mechanic of the Wyoming division, with headquarters at Wilkes-Barre, has been named to succeed Mr. Laux at Sayre and to assume the duties of master mechanic of the Seneca and Auburn divisions. **M. Jefferson,** master mechanic at Sayre has been named to succeed Mr. Davis on the Wyoming division.

F. A. Isaacson, acting mechanical engineer of the Santa Fe, has been appointed engineer of car construction with headquarters at Chicago.

The Frisco announces that **J. T. Fite,** general foreman in the car department at Springfield has been appointed mechanical inspector of the system, to succeed **John Forster,** retired January 1.

Civil

Robert H. Parke, division engineer of the Boston & Maine, with headquarters at Dover, N. H., has been appointed resident engineer, with headquarters at Springfield, Mass. Mr. Parke will be

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succeeded at Dover by **John F. Collins. Henry L. Restall** has been appointed assistant valuation engineer, with headquarters at Boston. He will be in charge of compliance with valuation order No. 3. **John P. Cronin** has been appointed office engineer at Boston. **Edward W. Backes** has been appointed resident engineer with headquarters at Concord, N. H. **Henry C. Archibald** has been appointed assistant division engineer, headquarters at Fitchburg, Mass., vice **John F. Whitney,** resigned. **Algie E. Cluff** has been appointed track supervisor, district No. 3, headquarters at Dover, vice **C. W. Lewis,** assigned to other duties.

G. M. O'Rourke, roadmaster of the Illinois Central at Carbondale, Ill., has been appointed district engineer of western lines, with headquarters at Waterloo, Ia., vice **J. E. Fanning,** who has been appointed district engineer of southern lines, with headquarters at New Orleans. Mr. Fanning succeeds **J. W. Kern, Jr.,** promoted.

C. O. Ryberg, assistant supervisor telegraph and signals, Fort Wayne division, of the Pennsylvania has been appointed supervisor telegraph and signals, Toledo division, vice **A. W. Hunter.**

L. R. Boettcher, assistant engineer of the Milwaukee at Milwaukee, has been promoted to division engineer, with headquarters at Wausau, Wis., a newly created position.

The Elgin, Joliet & Eastern announces that **John E. Bailly, Jr.,** has been appointed assistant valuation engineer, headquarters at Joliet, Ill.

Donald Rose

R. R. Strother, assistant engineer on the Omaha at St. Paul has been appointed assistant chief engineer, with headquarters at the same point, succeeding **Horace P. Padley,** retired, February 1, after more than 30 years of railway service.

The Missouri Pacific announces that **E. P. Hawkins,** division engineer of the central Kansas division at Osawatomie, Kan., retired February 19 and has been succeeded by **V. C. Halpin,** division engineer at Monroe, La. Mr. Halpin has been succeeded at Monroe by **G. S. Smith,** assistant engineer at St. Louis.

C. H. Cravens has been appointed division engineer at San Angelo, of the Kansas City, Mexico & Orient of Texas.

R. A. Van Ness, resident engineer on the Panhandle & Santa Fe at Amarillo, has been appointed bridge engineer of the Santa Fe, with headquarters at Chicago, succeeding **A. F. Robinson,** deceased.

Obituary

Donald Rose, European traffic manager of the Illinois Central, the Central of Georgia and the Ocean Steamship Co. of Savannah, with headquarters at London, England, died at his home there February 23, aged 66. Mr. Rose was born in Scotland and entered railway service on the Highland Railway there. He came to Canada in 1882 and entered

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SNOW PLOW ★ ICE CUTTER ★ DITCHER
UNIVERSALLY STANDARD
O.F. JORDAN COMPANY
WALTER J. RILEY, PRESIDENT
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JORDAN
SPREADER - DITCHER

Indispensable in mines, on railways, public works, industrial plants, etc.

Built in Standard and Narrow Gauge Sizes

the service of the Grand Trunk at Montreal and joined the Rock Island at Chicago in 1885. Mr. Rose first became connected with the Illinois Central in 1890 and was appointed European agent in 1904, but returned to Chicago to become assistant to the president in 1908 and later freight traffic manager. He was sent to London again in 1911 as European traffic manager and, with the exception of the period of federal control of the railroads from 1918 to 1920, he remained in that position until his death.

T. F. Merseles, recently elected president of the Johns-Manville Corpn., died at Del Monte, Calif., March 6, of heart disease. He was 65 years of age. Mr. Merseles was born in Jersey City, 1863. He was elected vice president and manager of the Western Wheel Works in 1893, continuing his connection with that concern until 1899. In the latter years, with Col. Albert A. Pope and A. G. Spalding, he organized the American Bicycle Co. of New York, being elected vice president. He became vice president and general manager of the National Cloak & Suit Co. in 1899, and assumed the duties of president of Montgomery Ward & Co. in 1921. Here his success was little less than phenomenal. Following the acquisition by J. P. Morgan & Co. of an interest in the Johns-Manville Co. in 1927, Mr. Merseles was elected president, resigning his position as president of Montgomery Ward, but remaining as a director and chairman of the executive committee. Mr. Merseles was also a director of the Continental & Commercial National Bank of Chicago, the J. I. Case Threshing Machine Co., the Mutual Life Insurance Co., the Northern Pacific and the Seaboard National Bank of New York.

C. B. Wilburn, former general superintendent of the Central of Georgia, died February 10 at Atlanta.

Harry R. Charlton, manager of the advertising bureau of the Canadian National Railways, with headquarters at Montreal, died there February 15, aged 63.

Charles L. Addison, assistant to the vice president of the Long Island, with headquarters at New York, died at his home there February 13.

J. H. Waterman, former superintendent of timber preservation of the Burlington, with headquarters at Galesburg, Ill., died at his home there February 5, aged 76.

E. L. Sinclair, division engineer of the Iowa division of the Milwaukee, with headquarters at Marion, Ia., died February 28.

Supply Trade Notes

Lewis H. Brown was elected president and director of the **Johns-Manville Corpn.,** succeeding **T. F. Merseles** who died March 6 at Del Monte, Calif. **W. R. Seigle** was made chairman of the executive committee. **S. A. Williams** was elected vice president in charge of factories, and **E. M. Voorhees** was named secretary in addition to his present position as treasurer.

The **Pittsburgh Screw & Bolt Co.,** has acquired the **Graham Bolt & Nut Co.,** in which the Jones & Laughlin Steel Co. had a substantial interest. The Pittsburgh company also owns the **Gary Screw & Bolt Co.** and the latest acquisition ranks the company as one of the largest producers of bolts and nuts in the country.

George Eaton Scott, vice president of the **American Steel Foundries,** Chicago, has been elected president to succeed **Robert P. Lamont,** who resigned to become secretary of commerce of the United States. Mr. Scott was born in St. Louis, where he started his business career with the Simmons Hardware Co. He became vice president of the Simplex Railway Appliance Co., Chicago, in 1901 and vice president of the American Steel Foundries, which had acquired the former company, in 1905.

During the war he was drafted by Henry P. Davison to serve in The American Red Cross and was with that organization from May, 1917, until April, 1919, serving as general manager and a member of the war council. In 1919 he was unanimously elected to the executive committee, upon which he still serves. In the spring of 1927 he was again called to Washington to take charge of national headquarters during the Mississippi Valley flood disaster. He is devoted to fishing and hunting

George Eaton Scott

and takes an active interest in the Izaak Walton League of America and was chairman of the executive committee for some time. Mr. Scott is a director of the Harris Trust & Savings Bank, the H. Channon Co., and the Griffin Wheel Co.

The **Davenport Locomotive & Mfg. Corpn.,** announces that **L. B. Morehead,** formerly in the engineering department of the Bettendorf Co., has been appointed chief engineer with headquarters at Davenport.

The **Bird-Archer Co.** announces these changes in organization: **P. B. Bird,** president, has been elected chairman of the board; **L. F. Wilson,** vice president and general manager has been elected president and general manager, with headquarters at Chicago; **W. E. Ridenour** has been elected executive vice president at Philadelphia; **C. A. Bird** has been elected secretary at New York; **H. C. Harragin** has been appointed district manager at New York; **T. P. Peacock** has been appointed district manager at Winnipeg, and **S. P. Foster** has been appointed assistant to the president at Chicago.

William B. Keys has been appointed manager of the Richmond office of the **Baldwin Locomotive Works** and the **Standard Steel Works Co.,** to succeed **George F. Jones,** retired after service of 29 years as head of that office. **Lewis W. Metzger, Jr.,** has been appointed assistant manager for both companies.

The **Stuebing Cowan Co.,** builders of lift and industrial trucks and skids, with headquarters in Cincinnati, has enlarged its Holyoke plant. It reports 1928 as its largest year and it was found necessary to triple the capacity.

Edwin J. Mohr, formerly manager of production for the Gould Coupler Co. and the Symington Co., has been elected president of the **Gould Storage Battery Co. Inc.,** Depew, N. Y. to succeed **Kenneth M. Smith,** resigned to become associated with the Horace E. Dodge Boat Works.

The **Ohio Brass Company,** Mansfield, announces that **O. M. Hullinger,** sales engineer with headquarters at Chicago, has been appointed district sales manager in charge of steam road and electri-

'RALSTON BUILT'

Steel and Composite Cars

Completely rebuilding large numbers of steel cars in record time is an achievement that Ralston Steel Car Company has repeated time and time again.

This is possible only through our excellent facilities and well-balanced program, which, together with skilled workmen and competent engineers, keep the cars moving through the plant on regular schedule.

THE RALSTON PLANT is equipped to build New Cars, to Rebuild Old Cars, to Repair and to supply repair parts. All materials and work of the highest QUALITY and performed under expert Engineering Supervision.

RALSTON STEEL CAR CO.
COLUMBUS, OHIO

The Wire With the Single Ridge

A positive means of identifying Okonite insulation

There is no need to identify a wire which does not render satisfactory service. If, in other words, there is no real reason to select this brand in preference to others, identifying marks are non-essential.

When, however, for more than half a century, a product has demonstrated longer life, greater dependability and greater long-run economy than any other, the buyer, naturally, wishes to make sure that he is getting this one brand. That is why so many purchasers today look for the "single ridge"—for more than fifty years, a positive means of identifying OKONITE insulation.

The Okonite Company

The Okonite-Callender Cable Company, Inc.
Factories: Passaic, N. J. Paterson, N. J.
Sales Offices: New York Chicago Pittsburgh St. Louis Atlanta Birmingham San Francisco Los Angeles Seattle Dallas

General Electric Supply Corp., Boston, Mass.
Novelty Electric Co., Philadelphia, Pa.
F. D. Lawrence Electric Co., Cincinnati, O.

Canadian Representatives:
Engineering Materials Limited, Montreal

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Victor G. Mendoza Co. Havana

OKONITE OKONITE

fication sales with the same headquarters to succeed **F. E. Johnson**, deceased.

C. C. Battershell, formerly secretary of the Purple Stages Bus Operation, running between Chicago and New York, has resigned to join the sales department of the **American Car & Foundry Motors Co.**, with headquarters at Chicago. He will handle the Kentucky and Indiana territory.

T. G. Dalton, formerly sales engineer for the National Boiler Washing Co., has been appointed representative of the **Railway Engineering Equipment Co.**, Chicago.

A. W. Fields, formerly district manager for **James B. Sipe & Co.**, at St. Louis, has been appointed manager of transportation division with headquarters at Pittsburgh. **W. H. S. O'Brien**, formerly sales representative of the Waugh Equipment Co. will succeed Mr. Fields at St. Louis.

H. J. Clarity and **Henry W. Dickerson** have been appointed representatives of the **Lehon Co.**; Mr. Clarity at Minneapolis and Mr. Dickerson at Richmond.

The **Magnus Company, Inc.** has announced several changes in its organization. **Edward J. Cornish** who has been president has been elected chairman of the board of directors and **William H. Croft** who has been vice-president in charge of operations and sales since 1907 succeeds Mr. Cornish as president. Mr. Croft who will continue his headquarters at Chicago became associated with the Hewitt Mfg. Co. a subsidiary of Magnus Metal Co. in 1893. In 1904 he was appointed assistant to the president and in 1905 sales manager of the old Magnus Metal Co. When the National Lead Co. acquired the Magnus and Hewitt companies in 1907 Mr. Croft was elected vice-president in charge of operations and sales of both companies. In 1915 he was elected first vice president. **William P. Carney**, who has been sales manager since 1926, succeeds Mr. Croft as vice president. Mr. Carney is a Hoosier, having been born in Richmond, Ind., and started his business career as a stenographer with the Pennsylvania railroad. He joined the Magnus organization in 1902, was made assistant to the vice president at New York in 1910 and in 1916 was transferred to Chicago. The two "Bills" are extremely popular with the railroad fraternity and their many friends will be pleased to learn of their advancement.

Breaking New Trails

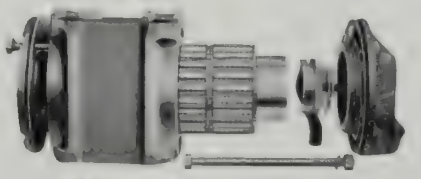
THREADING mountain passes, spanning inland seas, reaching out across deserts and barren wastes, Southern Pacific was among the first of the mighty trail breakers.

Today this pioneering spirit is reflected in tens of thousands of fruitful acres producing for markets two and three thousand miles distant. Millions of people are eating the fresh fruits, lettuce, vegetables and other western products as a regular part of their daily diet, although barely twenty-five years ago these things ranked as occasional luxuries.

Pioneering railroads made this possible; but only efficient and economical operation of the railroad system as a whole can continue rail service upon a level which will be satisfactory and profitable to the producer.

Romance still clings to the Iron Horse and Southern Pacific is still pioneering new territories, carrying its lines into new and productive areas. Railroad transportion, however, is so highly developed in the West that new lines must be built only to meet definite demands. Mere division of traffic by duplication of service, or new construction not calculated to produce, within reasonable time, new traffic sufficient to justify its cost of operation and maintenance must eventually be reflected in higher rates, or, at best must far advance the day when lower rates may be possible.

SOUTHERN PACIFIC



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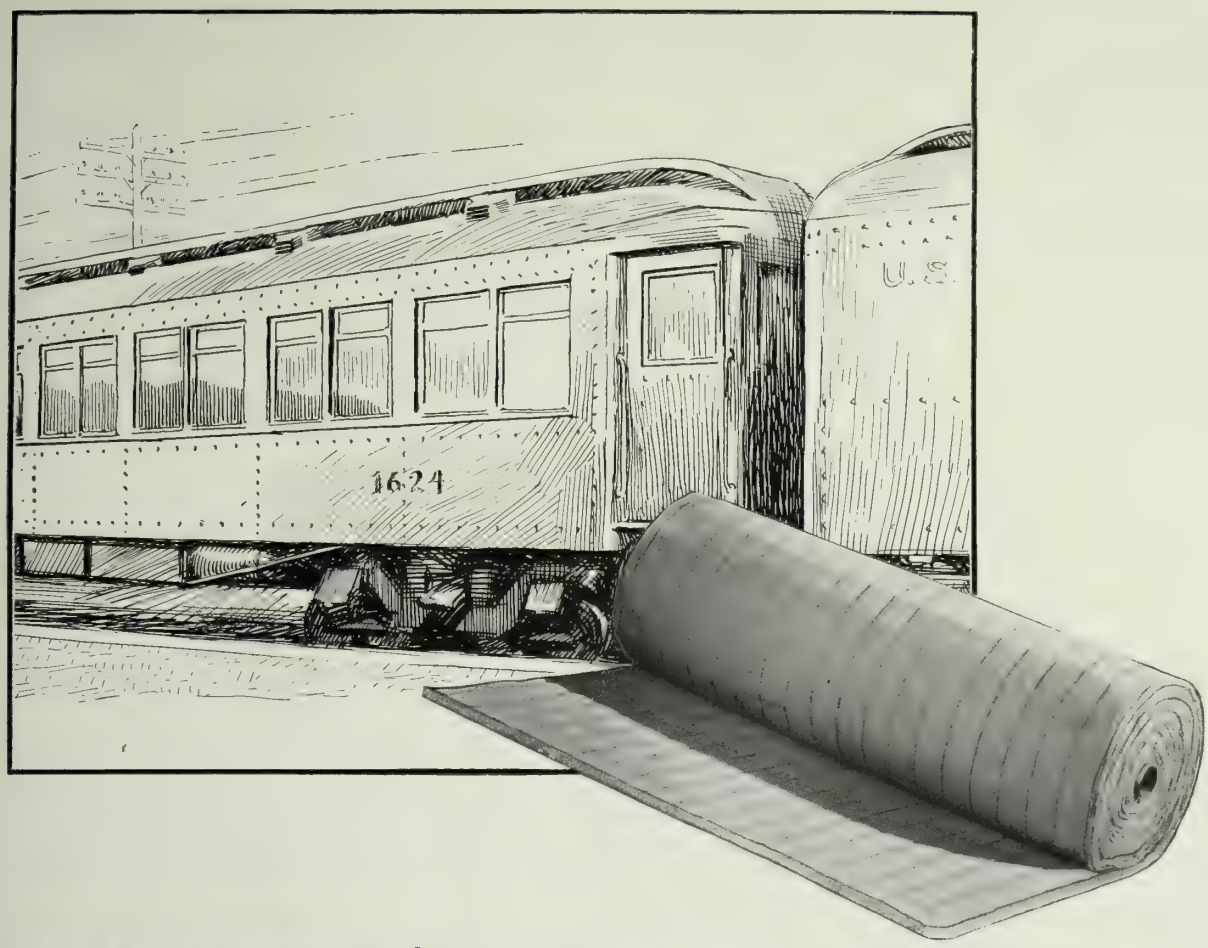

COMFORT in passenger cars
. . . *in cold weather or hot*

STEEL car walls that carry heat like a soldering iron and admit cold like an open door, *need* insulation.

The heat-stopping value of Balsam-Wool Blanket assures easy heating of cars into which it has been built. And this same heat-stopping efficiency keeps out the gruelling heat of summer that makes an ordeal of traveling in poorly insulated cars.

And more than merely stopping heat, it is valuable as a sound deadener—making cars much quieter.

Balsam-Wool Passenger Car Insulation is highly fire resistant. It meets every requirement for railway mail cars.

The light weight and durability of Balsam-Wool are attractive features.

The growing preference for Balsam-Wool Passenger Car Insulation is indicated by its specification in more than 50% of the passenger cars ordered this year by American railroads.

Write for samples and detailed information.

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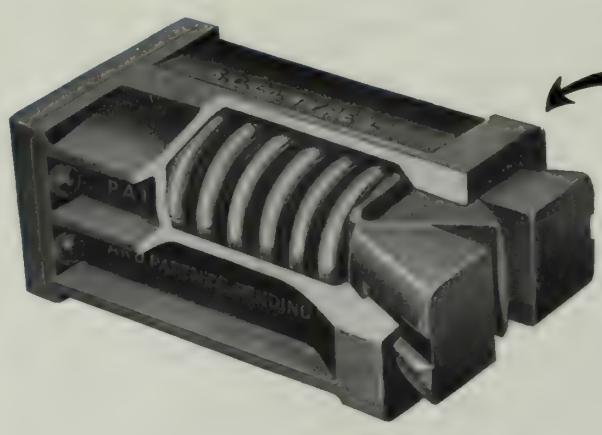
WHY

pay $2,500 for a car, load it with $6,000 worth of lading and allow the entire outfit to be damaged or destroyed because the draft gear (no matter how good a gear was used) did not properly protect the *Car and Contents* from switching and other shocks in handling?

For 25 years

we have been supplying car and lading protection to leading railways.

THERE MUST BE A REASON



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May we show you how?

Unless you REALLY KNOW, you are losing money for your road.

STANDARD COUPLER CO.

NEW YORK CHICAGO

Transportation

The National Monthly of the Transportation Industry

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Vol. IV April 1929 No. 4

RAILROADS are ever in the forefront of progress when it comes to improving conditions.

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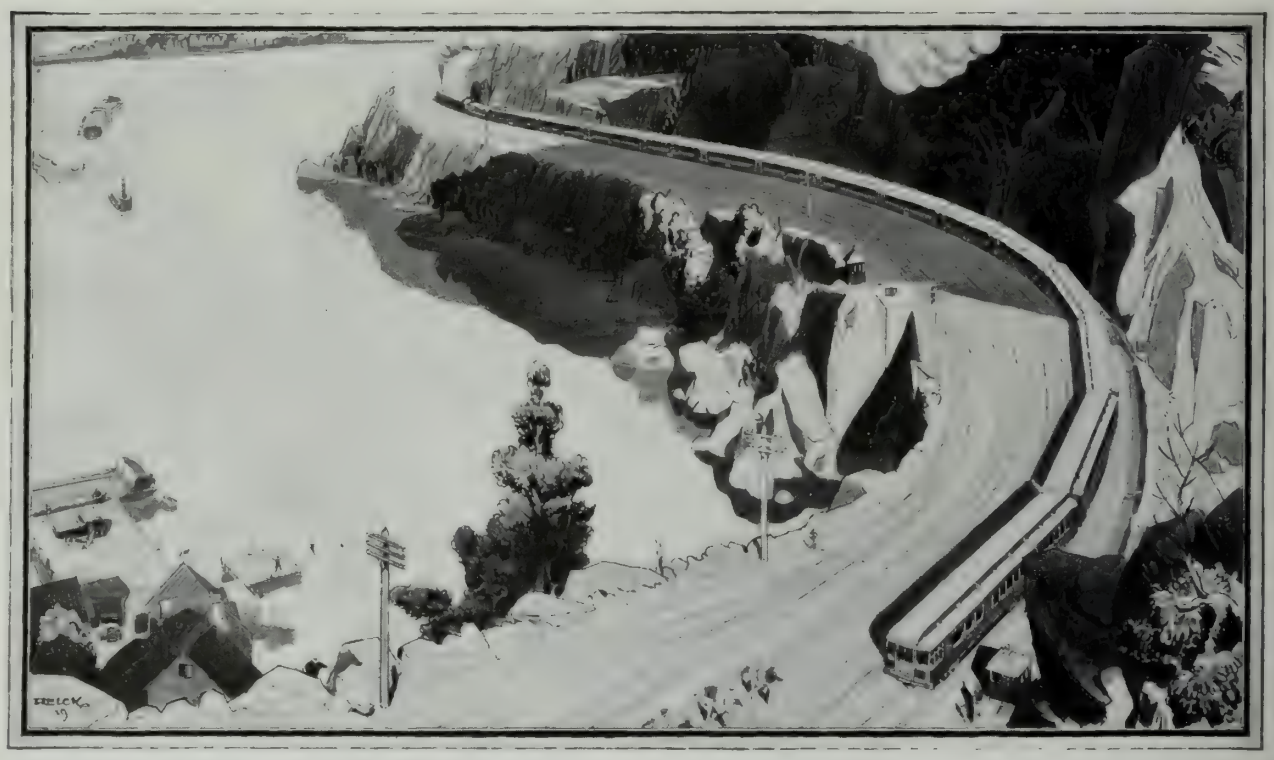
Then, as a final touch, the adoption of anti-friction bearings—Hyatt Quiet Roller Bearings.

Now nothing is lacking in speed, safety, silence or comfort...for Hyatts add that extra-smooth, noiseless, effortless gliding over the rails that insures complete relaxation.

The train that runs on Hyatts is the train they like to ride



All over the country you will find coaches, dining cars and Pullmans operating on Hyatt Quiet Roller Bearings.

They are doing away with jolting starts, sluggish pick-ups, and plain bearing "drag"...substituting in their place the velvet smoothness and restful comfort imparted through the use of quiet Hyatts.

And just as the Hyattway is the Comfort Way for the traveler, so is the Hyattway the Saving Way for the railroads.

Where Hyatt Quiet Roller Bearings are in use, more cars per train can be handled. Schedules are maintained, due to the elimination of the hot-box. Maintenance costs are reduced; depreciation of equipment is retarded; a notable economy in fuel consumption is effected. There is increased revenue and a greater public good will.

Hyatt Quiet Roller Bearings are helping to make today's train ride a pleasurable, comfortable trip. So mark you well—*the train that runs on Hyatts is the train they like to ride!*

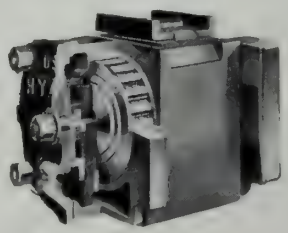
HYATT ROLLER BEARING COMPANY

Newark Detroit Chicago Pittsburgh Oakland

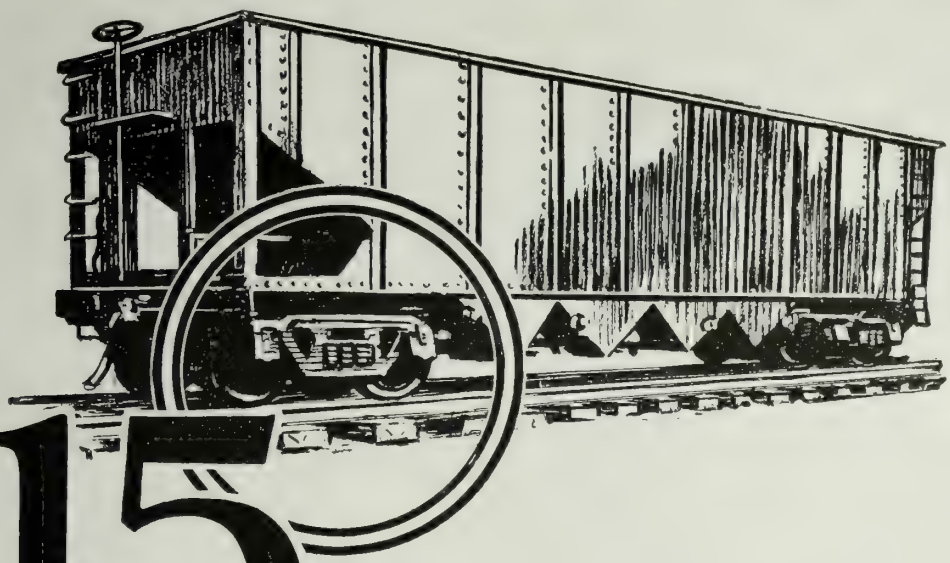
HYATT

ROLLER BEARINGS

PRODUCT OF GENERAL MOTORS



Hyatt equipped Journal Box—cut away to show construction.



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More Pay Load

FOR every pound of car weight you save, you can add a pound of revenue freight.

Used as a unit, Schaefer Foundation Brake Gear Details—Truck Lever Connections, Body and Truck Levers, Brake Beam Hangers, Brake Rod Jaws—make possible the reduction of 115 pounds in weight per car set. (Also, they assure greater car safety, for all Schaefer Details are drop forged of special wear-resisting steel.)

Why not save 115 pounds per car? Think what this amounts to on every thousand cars, with an average movement of 30 miles per day.

Have you seen the new Schaefer Wearing Plate? Eliminates wear on side frames. For use with Loop Hanger or ordinary "U" type hanger with pin. Write for illustrated bulletin.

SCHAEFER EQUIPMENT COMPANY

General Offices:

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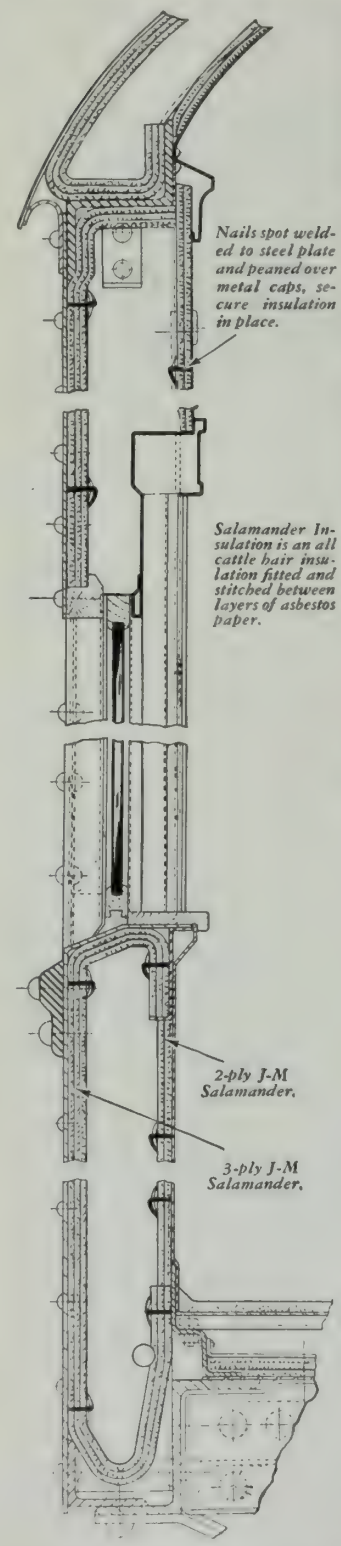


Have You heard the one about Salamander Car Insulation?

IT'S a good story! The veteran salesman can tell you how cold and uncomfortable steel cars were when they were first put on the road about 19 years ago.

He may not know it, but it is a fact that the atmosphere of quiet and comfort in which the public travels today, is dependent on proper steel car insulation—Johns-Manville Salamander, for the most part. Offered to the car building industry when steel passenger equipment was originally designed, its value and economy have been thoroughly proved after years of use through all extremes of weather.

Salamander Insulation does not rot, pack down, or deteriorate, but retains its high initial insulating value long after inferior insulation has had to be replaced. In the Mississippi River floods a train of two Pullmans and four coaches, after being submerged almost to the roof, were put back into service without replacement of insulation—the Salamander Insulation drying out in place without any bad effects.

Johns-Manville Salamander Insulation is easy to apply. The typical steel car section at left shows how it is done. It can be flanged around window posts, braces, carlins, purlins, uprights, and any irregularities in sides, ends or roof framing, and can be curved to the radius of the decks. It's a good story—pass it along!

JOHNS-MANVILLE CORPORATION
New York Chicago Cleveland
San Francisco Toronto
(Branches in all large cities)
Please send me full information in regard to steel car insulation.

Name.....

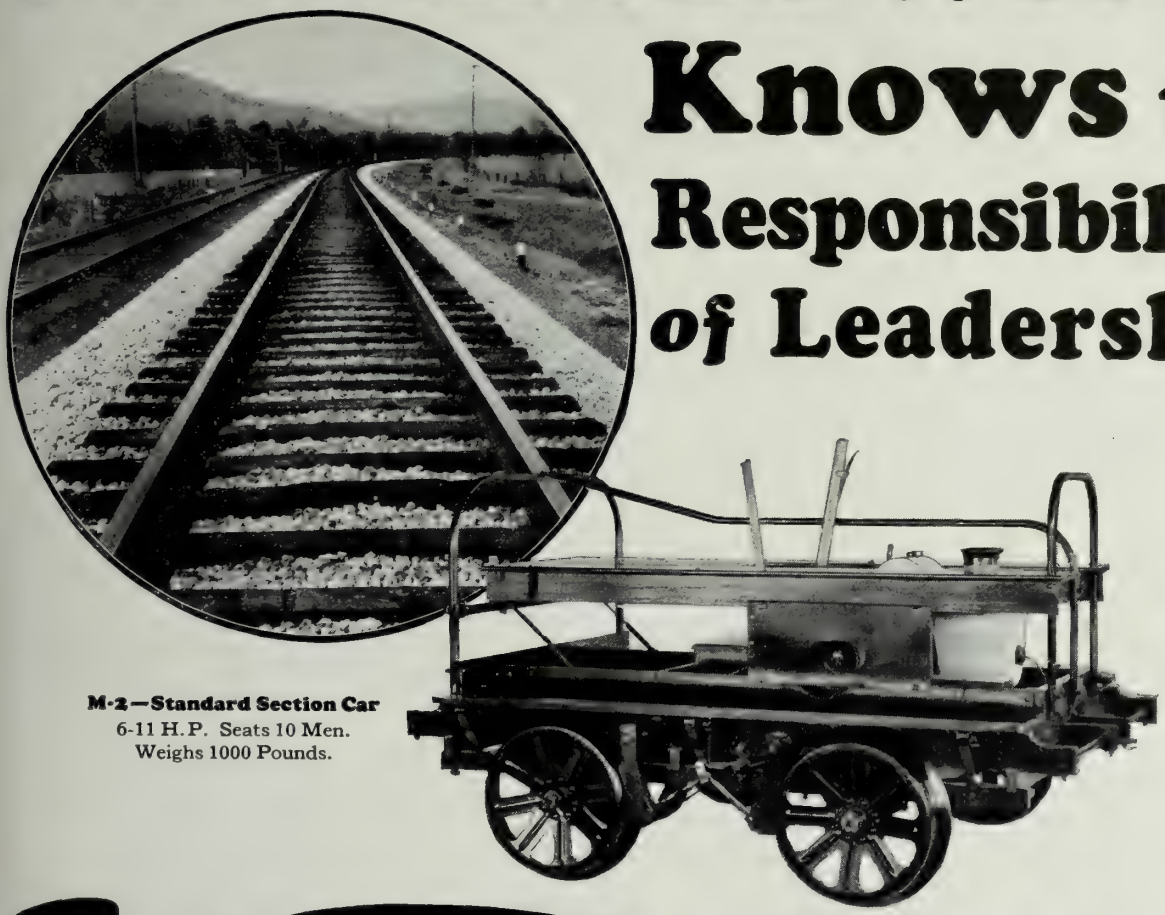
Company.....
RR 8-4

Address.....

Johns-Manville
SERVICE TO RAILROADS

JOHNS MANVILLE JM CORPORATION

The Railroad World Knows the Responsibility of Leadership



M-2—Standard Section Car
6-11 H.P. Seats 10 Men.
Weighs 1000 Pounds.

Fairmont AND Mudge

RAILWAY MOTOR CARS

It is one thing to achieve success—it is another thing to *hold* it! The builders of Fairmont and Mudge Railway Motor Cars keep this ever in mind. The railroad world recognizes Fairmont quality—*over half the motor cars in use are Fairmont products.* Nevertheless, this Company, recognizing its responsibility to the railway industry, is increasing its effort to uphold and *sustain* that quality which has earned Leadership.

Performance on the Job Counts

FAIRMONT AND MUDGE PRODUCTS

Section Motor Cars
A2—M2—S2
M14—WS2
Inspection Motor Cars
C1—M19—MM9
Weed Mowers and Discers
M24—M23
Weed Burners
B (M27)—C (M27)
Gang and Power Cars
MT2—A4—A5
Push Cars and Trailers
T1—T2—T3—T12
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Ringseald-Axlsaver
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Motor Car Engines
QB—PHB—PHA
QHB and W
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FAIRMONT RAILWAY MOTORS, INC.

General Offices: FAIRMONT, MINN. *General Sales Offices:* CHICAGO, ILL.

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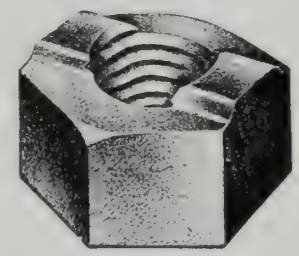
BALDWIN LOCOMOTIVE WORKS, *Foreign Representative*

THE RAILROAD WORLD KNOWS

Speed—*With Safety*

MODERN railroads are meeting the ever-increasing demand upon them for speed and more speed—but, in every instance, they place *safety* first; speed second.

Greater speed places greater strain on bolted parts; there is a greater tendency for nuts to loosen.



Grip Nuts counteract this tendency; they insure the essential safety factor. Their uniform, full-depth threads afford ample holding power; their automatic lock, put into them when they're made, locks them positively and permanently on their bolts.

For perfect safety, no matter how great the speed, apply Grip Nuts.

GRIP NUT COMPANY

5917 South Western Avenue
CHICAGO, ILLINOIS

Transportation

(Reg. U. S. Patent Office)

The National Monthly of the Transportation Industry

APRIL, 1929

VOLUME FOUR NUMBER FOUR

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WHAT ABOUT THE NEWARK ACCIDENT? — *Charles Dillon*

EDITORIAL COMMENT, — *The Editor*

LITTLE STORIES ABOUT BIG MEN.

QUEER THINGS IN THE NEWS.

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SUPER-POWER Locomotives are the production machines of the transportation industry. Just as the manufacturer eagerly grasps an opportunity to cut production costs with new machines, so, too, the progressive railroads are taking advantage of the economies of Super-Power locomotives to reduce the cost of transportation.

Most of the Locomotives built in the last three years incorporate the Super-Power Principles.

LIMA LOCOMOTIVE WORKS
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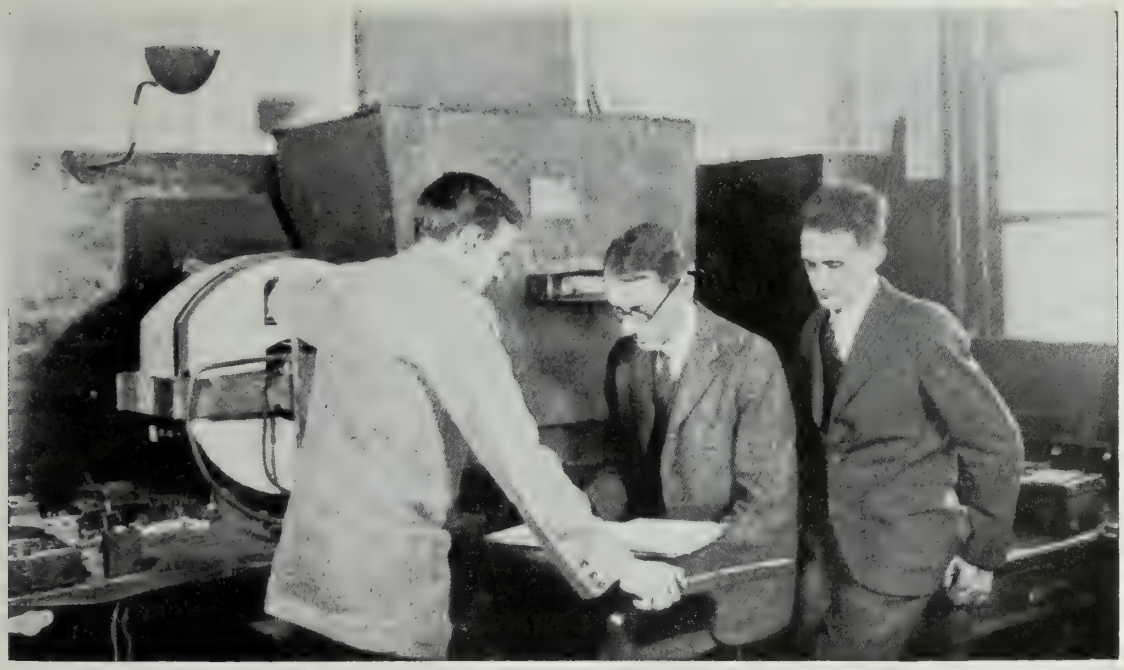
LIMA, OHIO



The Wonders of Chemistry Seem Endless. Some of These Alter the Whole Program of Human Living.

Science and Traffic

By T. C. Powell

President C. & E. I. Ry.

THE TRAFFIC of a railroad is in a constant state of flux. New developments and the disappearance of old ones, new competition and new products all operate to add to or take from the railroad's tonnage, passenger traffic and revenue. Since the close of the war, we have seen many developments, some of which are the direct outcome of the discoveries made during the war: Developments in science, in manufacturing, in farming, and in transportation. Perhaps these may cover almost the whole scheme of civilization, but I want to confine my remarks to the effect of these developments and changes upon railroad transportation operations and revenues.

First, let us take science and manufacturing, as they go hand in hand. What effect do they have upon railroad transportation and revenue? Within the last few years, three books have been written which tell a wonderful story. These are:

"Science Re-making the World"
"What Price Progress"
"The Hand-Writing on the Wall"

A century ago, it was thought that the color of brick depended on the fuel used. One manufacturer attributed the red color of his product to the fact that he always finished off with white birch as the final fuel! Twenty-five or thirty years ago, carloads of ground iron ore were shipped from from Tennessee and Alabama to Illinois and Wisconsin and other points to tint the local brick to a more agreeable color. Today, it is known that the color depends upon the heat applied in the kilns. Delicate instruments installed in the office building a block away record the temperature every few minutes. The result is that the railroads do not haul iron ore to the brick plants.

"Portland Cement" was so-named, not because of the process of manufacture, but because the concrete produced by the ce-

Science Produced This Substitute for Railroad Stock Cars. It Takes Away Much Traffic, Too.

ment looked like the stone that came from the Portland stone quarries in England, owned by the Duke of Portland. As a matter of fact, the process of making Portland cement was discovered accidentally. Now, the name is applied to cement made by special processes, and because of its uniform quality and stronger setting power, Portland cement has practically replaced the old natural ground rock cement. By reason of the present advanced chemical knowledge, cement plants are so numerous and so widely scattered over the country that the average rail haul except perhaps west of the Mississippi River, is not over 100 miles for any one railroad. In fact, from the railroads' point of view, rates are so low that only the heavy lading per car makes the cement traffic desirable. The net result, therefore, of the application of chemical knowledge to the cement industry has been to eliminate rail haul entirely on a vast tonnage by permitting the production within trucking or boating distance of large consuming districts, while the mileage scale of rates prescribed by the Interstate Commerce Commission has tended further to localize the distribution.

Perhaps it is the lack of science that, in the lumber business, has reduced the earnings on this class of traffic for the rail carriers rather than the superabundance of scientific knowledge. Vast forests have disappeared and no reasonable plan has been evolved to utilize these cut-over lands at a profit. The nearest approach, perhaps, is the result of chemical research, by which it has been possible to extract turpentine from old pine stumps, thus making it economical to clear the land and prepare it for use for farming or grazing. But this does not restore the forests. We shall not really need more land until our population exceeds the present figure substantially, perhaps not until the United States has a population of 150,000,000 or more. The cutting down of these forests then, and the failure to replace them, has taken away from the rail carriers an enormous tonnage of what is classified as forest products.

In this particular item, the picture is not entirely black, because lumber substitutes are constantly increasing in number, and many of them are made from hitherto waste products, so that a tonnage is now being produced from what formerly was burned or allowed to rot. How far these substitutes in the matter of tonnage and revenues take the place of the tonnage and revenue from lumber it would be difficult to say. I doubt whether the substitute in revenue is complete.

Again, in thickly settled communities, lumber is being replaced by law with concrete, iron and steel, brick, tile, etc., but some of these are produced within trucking distance of the consumer and, therefore, produce no revenue for the rail carriers.

Coal is one of the vital products of the United States. Time was when coal was so cheap and adaptable that its use was almost as consistent as air and water. Through various causes these times have changed, and the miner, the operator and the railroads are on the anxious seat, fearing a still further reduction in their revenues.

Probably there never has been a time, in the last 50 years, when an uninterrupted operation of the available coal mines would not have produced an excess of coal. This was true even during the war, because any sudden shortage was shown to have been the result of dispute, failure to work, etc., and not through any lack of available coal in the ground. Shortage of coal, therefore, has not been behind the effort to reduce the amount of coal per horsepower or

Oil Trains Made Up of Trucks Like This May Be Seen Day and Night in the Oil Country. Railroads Used to Get This Business.

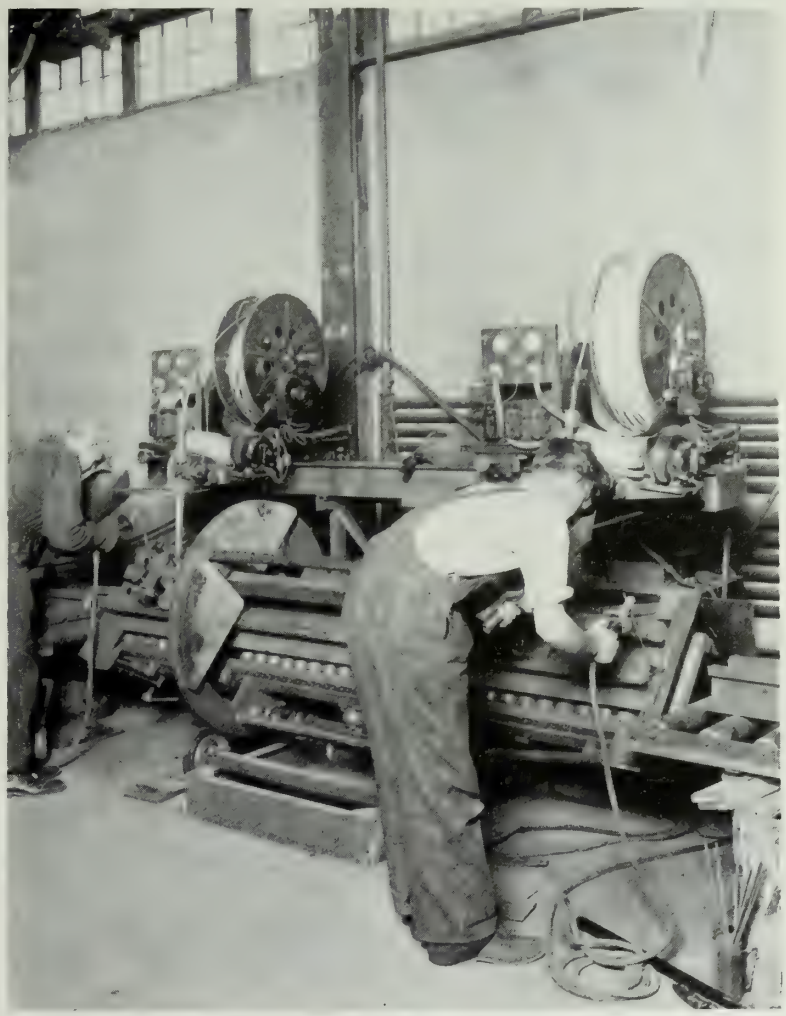
kilowatt hour. The incentive for such reduction in consumption has been the desire to reduce, as far as possible, the cost. The uncertainty of supply has resulted from strikes and disagreements that have, unfortunately, surrounded this important industry.

Had the demand for steam power and electricity remained constant, without any substantial increase, and had the horsepower and the kilowatt hour produced per pound of coal reached its present stage, the reduction in the demand for coal would have been enormous, without taking into account hydro-electricity at all.

I am told there is at least one plant in the United States which, with one pound of coal, produces one kilowatt hour of electricity. However, fortunately for the miner and the operator, the demand for power is constantly increasing, but the railroads have not all benefited proportionately, and the country has been full of idle coal cars waiting for demand. I must admit that I look forward to a further reduction of the rail haul of coal through the development of large electric power plants on large streams adjacent to coal deposits and also from the distribution of electric power over even larger areas than now.

Again, through the operation of super-gas plants located at or near coal mines in such a way as to be free of any fear of strikes, floods or other interruption, such plants will be able to produce artificial gas for transmission by pipe line. It is from the by-products of these plants that I hope the rail carriers will profit.

Perhaps it is not looking very far in the future to say that ultimately the railroads will be electrified and trains will be dispatched by the pressing of a button. Each freight or passenger car will be a complete entity and motor unit. No train will need an engine; there will be no coaling stations, and few stops. Perhaps this sounds like a dream, but we should recall that the most modern submarine has not yet reached in comfort and efficiency the standard fixed by a dreamer, Jules Verne.



Arc-Welding Machine Used in Making Steel Ties From Old Rails. Delaware & Hudson Photo.

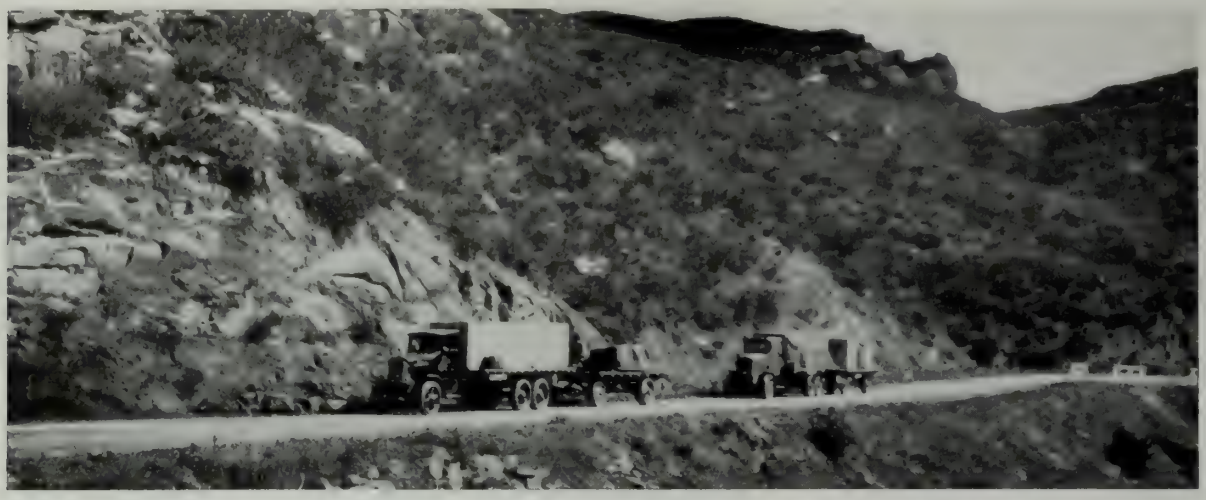
The development of manufacturing has brought us the automobile. The extended and general use of the automobile finally will wipe out the hamlet and village and many of the small towns as business centers. Some of these places originally had for their nucleus a blacksmith's forge and a cross-roads store. These no longer are needed.

There is no reason why the maintenance of farm machinery, of automobiles and other mechanical appliances cannot be accomplished through the medium of high-priced and expert journeymen mechanics living in the large centers. They must be experts to perform this work satisfactorily over a large territory. They will be, in a modern sense, "gentlemen of the road." Larger farms will develop and will maintain a corps of experts for every need. All of the demands of the family outside the large cities will be supplied from these centers by air, by highway and by railroad trains. In the words of the poet—

"Nothing that is, can pause or stay."

Only one hundred and twenty-five years ago, the country was clamoring for a through highway to supplement travel and trade by river. There was no land highway at that time between the East and the West. Henry Clay declared that it had taken him twenty-four hours to move nine miles. The National highway fell into disuse only when the railroads took its place.

The difference today is that the railroads now are being displaced



English Railroads Lost Their Short Haul Freight Traffic to the Trucks Years Ago. The Experience is Being Repeated Over Here.

by government and state aided hard-surfaced highways. There has been an almost steady decline in railroad mileage since 1916, when the maximum of 254,250 miles was reached. The present mileage is about 2,500 miles less than this. Nearly every month, the Interstate Commerce Commission or a state public utility commission authorizes the abandonment of unproductive short lines because no subsidy is given to support them.

Every mile of track abandoned, every train discontinued, every station closed, every shop force cut down, reduces the volume of money distributed by the railroads. The time is approaching when railroad rails will connect only the important towns and the important producing sections. Perhaps this is a sign of progress, and just as the tavern stations and wagon stands on the National highway have disappeared and their places taken by filling stations and barbecue stands, so the branch lines and short railroads will fade away; their place being taken by the more mobile truck and bus and private automobile, which can operate at a minimum cost, through governmental assistance in constructing and maintaining the highways. The traveler in the smaller communities, of possibly 2,500 and less, ultimately will find it necessary, in order to take passage on a railroad train, to travel by some other means of locomotion to the station at which the train stops to take on and discharge passengers.

What changes have taken place in farmers' status since 1910 to 1913? There are not so many farmers, for one thing, and, in fact, not so many farmers are needed, inasmuch as electric and gasoline motors available have taken the place of the farm hand. A boy 15 years old, with the help of mechanical appliances, can now do the work of ten farm hands, who no longer are so necessary.

The gasoline or the electric motor, or both, are taking the place of hand labor in pumping, preparing firewood, cutting fodder, plowing and harrowing, cultivating, reaping, threshing, milking cows, separating cream, churning butter, making deliveries of all farm products, sometimes direct to the consumer.

Most of this farm work I have done myself, and I know what a relief a mechanical appliance can be. As one writer has put it, the farmer has found, after experimenting with an electric pump, that the labor of his wife as a pumper is worth only about one-half cent an hour.

The farmer and his family also get all the benefits of electricity and gasoline in items common to other occupations, such as the electric lights, the sewing machine, the motor-operated tools, the automobiles.

Chemistry has come to the farmers' aid in utilizing their products in many ways. Corn is now something more than feed for stock. A certain amount is used for human food, large quantities are consumed in producing glucose syrups, and from the glucose syrups there is now produced sugar, and more recently the stalks have been converted into paper and wall-board. Chemistry has made possible the conversion of beets into sugar and sugar into glycerine.

The increasing demand for milk has lightened the farmers' labor in connection with its delivery. Many dairy farmers simply wait for the milk collector to call for their production of that day, and at the end of the month they get a check in settlement. This is where the railroads feel the new development, as the milk is frequently carried all the way by truck from the farm to the consumer, handled through milk collecting stations and then distributed direct to the buyer.

It must be admitted that many farmers live largely on canned goods, and sometimes the railroad gets the benefit of this traffic.

Again, the farmer no longer need bother about cattle hides. Once it was his complaint that the price received for a hide did not cover the cost of skinning the cow. Now he can sell his hides on the hoof when he sells his cattle, and the benevolent manufacturer sells him shoes with soles made of rubber or synthetic leather. Leather plants are being dismantled or abandoned in many places. Whereas the railroads formerly handled tanbark in trainloads and hides and leather in carloads, the tannic acid is now extracted from bark and wood, and sent in a concentrated dry form to the few tanneries remaining in operation.

The fact is that people are not using as many shoes as formerly, because they are riding now instead of walking, but an even greater factor in reducing railroad tonnage in leather and shoes is that as our cities grow larger they become more self-contained and self-supporting. Scatter ten million people along a railroad 1000 miles long and they will develop numerous wants which will require railroad transportation. Group the same number in metropolitan New York, or half their number in Chicago or Los Angeles, and their railroad freight importance shrinks immensely except as to items of food.

P&A Photo.

Sleeping Section in Motor Bus Between New York and Chicago.

In 1910, the estimated population on farms in the United States was something over 32 million people. The estimate for January, 1926, is less than 28 million people. With a total population in this country of 118 million, this means that the 28 million people on the farms must produce the food stuffs for the 90 million people in the urban communities. Not all the 28 million people on the farms are capable of producing, but the 90 million people in the settled communities of 2,500 and over are all consumers.

The decrease in the number of livestock, particularly horses and mules, brought about through the use of gasoline trucks and tractors has made unnecessary the production of an enormous amount of fodder, so that from this cause alone something like 13 million acres have become non-productive. The railroads, while partly compensated in other directions, have lost the revenue derived from transporting all the hay and grain produced on the 13 million acres.

A 25 horsepower automobile may be projected along the highway for 15 miles on one gallon of gasoline. Consider the difference between the revenue derived by the carrier for handling one gallon of gasoline as compared with the revenue on the necessary amount of the grain, hay and other fodder for the 25 acres, to say nothing of all the accoutrements in the way of harness, horse-

P&A Photo.

New York to Chicago and On to the West Coast, With Sleeping and Dining Facilities; This Takes Railroad Passenger Traffic. Brains and Science Turned the Trick.

Wide World Photo.

Among Modern Wonders of Science is the Radio by Which Engineer and Crew Talk When Necessary in Handling Long Freight Trains.

shoes, etc. Necessarily, therefore, as the result of these changes reducing the man power needed on the farms, part of the increase in the city population has been brought about by the movement from the farms. The farm hand and the farmers' children not needed on the farm help to swell the population of the cities, and as these cities grow in area they begin to support industries, so that immediately many of the wants of the city population are supplied by local manufacturers.

The only important traffic left for the railroads in such cases is the item of food, supplemented with the item of fuel and some of the raw material. Of course, I do not overlook that manufacturing plants in the settled communities necessarily need raw material in order to turn out their product, but it has been the policy of the rail carriers from the very beginning to encourage the movement of raw material at low freight rates with the expectation that the railroads would receive more lucrative traffic from the manufactured articles. In the large centers, however, the enormous increase in the urban population has created a consuming demand so great that many articles do not need to go beyond the local range of the local manufacturer. Thus lucrative traffic heretofore distributed throughout the country has, from the railroad standpoint, disappeared in many sections.

No more sweeping changes have taken place in the period 1910 to 1913 than in transportation facilities and methods. If, as Tennyson wrote, "A sorrow's crown of sorrow is remembering happier things," surely the railroad officials' "crown of sorrow" is the memory of the happy conditions from 1910 to 1913 compared with the present period of cares and anxiety. In the prior period, freight rates had been advanced generally in some regions and adequately in certain local or special places.

The Panama Canal had not been completed, and its effect was still unknown.

The railroads were contributing cheerfully to good roads campaigns to help the farmer and lumberman to reach the railroad stations and sidings. The prices of material were reasonable, and overhead was still something that could be handled without difficulty. Wages were lower than now, but there was less unrest. Few mad "speed" schedules were in effect or even contemplated. Grade separations were not often called for, and when necessary the public paid a fair proportion. The competition of the automotive vehicle was being discussed but was still a theory and not a condition. Improved highways were built to bring freight to the railroads and not to take the traffic away from the railroads entirely, as now. Local passenger trains were crowded, and if a few people happened to ride free it was hardly noticeable. Congress had not subsidized the government barge line. The I. C.C. had not restricted the rail carrier in meeting water competition. Neither congress nor the states had appropriated vast sums, amounting to millions in the aggregate annually and to billions in the total aggregate since that time, to provide free highways for the competitors of the railways. Municipalities had not pledged their credit to any appreciable extent to provide free water terminals and parking facilities for the competitors of the railroads. The national government was limiting the improvement of the rivers to the local needs, and had not embarked in a nation-wide waterways expenditure, partly at the expense of the railroads. Nor had the individual states taxed the railroads and others to provide funds for lavish expenditures for harbors, canals and deepened river channels, all of which are now handed free of charge to the competitors of the rail carriers. The taxes of the railroads had not risen to the enormous figure of a million dollars a day, as at present.

In a word, the period of 1910 to 1913 conditions were normal, competition was natural and competitors subsidized by government

were hardly known. As a contrast, the conditions of today are the reverse of those in the period named. I firmly believe that subsidized competition is the most serious menace to the public that exists today. The menace to the public is through the railroads, because as the traffic carried by rail gradually drops, the train service decreases, the local passenger trains are taken off, the opportunity of maintaining a well-rounded transportation facility is interfered with.

Has anyone in New York or even in any community in New Jersey bought a cheaper loaf of bread because the people of New York, including the railroads, are paying millions toward the building and maintaining of the New York State Barge Canal and its facilities? Here are two pictures to consider: Free waterways, free water terminals, free highways, free airports, free airways.

Contrast those subsidies with this: Reduced train service, reduced railroad payrolls, reduced railroad purchase of materials, reduced work for the employes of concerns manufacturing railroad supplies, reduced purchases from the merchant heretofore patronized by railroad employes.

It is fair to say that, as pointed out in the three books I have listed, some of the rail lines are suffering in part from the economic changes that are inevitably connected with progress in a country so large as the United States. For instance, the movement of cotton, once so important to the railroads leading to New England, has become, in that respect, a negligible commodity, but the change has benefited other carriers.

The loss of lumber traffic from the South and North has been replaced by lumber from Canada and the states of the Northwest, and also by the lumber substitutes previously mentioned.

Oil has replaced coal, in part, and has provided a new tonnage to many of the carriers. The menace in this instance is the adaptability of oil to transportation by pipe line at a cost far below any remunerative freight rate.

We have, therefore, these shifting conditions brought about by natural developments, and no railroad can complain, because every railroad may, in the course of time, benefit from such development. Therefore, the shifting of industries or points of production is always of interest to the rail carriers, but there is usually some compensating factor surrounding every such change. In subsidizing competitors of the rail lines, however, there is no compensation, and the evil spreads.

In the Tire-Making Room of the Pacific Goodrich Plant, Los Angeles; Chemistry At Its Best.

Quick Settlement of Claims

While the carriers are devoting much time to the study of prevention of loss and damage, they are not neglecting the question of claim settlements. During 1928, more than 90 per cent of all loss and damage claims were adjusted within 90 days, and 75 per cent within 30 days. It is no doubt true that claims on fresh fruits and vegetables constitute the larger part of those requiring in excess of 90 days, but this is easily understood when we consider the long distances traveled by so large a part of the shipments upon which claims were filed, and the many phases of transportation handling which must of necessity be investigated. There was never a time in the history of the railroads when such a united effort was being made to adjust meritorious claims promptly, as now. A minimum number of unsettled claims is on hand at present.—*A. R. A. Report.*

Plain truth will influence half a score men at most in a nation, or an age, while mystery will lead millions by the nose.—*St. John.*

Wide World Photo

New Gas-Electric Rail Motor Car Built for the Burlington. The Car Has Compartments for Passengers, Mail and Express.

International Fuel Meet May 7-10

One of the big events of May for railroad men everywhere, and for the entire fuel industry, coal and oil, will be the 21st yearly convention of the International Railway Fuel Association, to be held in the Hotel Sherman, Chicago, May 7 to 10, inclusive. The program, just announced, includes addresses by several distinguished men in both industries. It is given here in full; the hour set for addresses is Chicago daylight saving time, one hour faster than standard time.

Tuesday Morning—Opening Session

Meeting to convene at 11 a.m.
Invocation.
President's address.
Address by Sir Henry Thornton, president and chairman board, Canadian National Railways.
Address by R. H. Aishton, president, American Railway Association.
Address by H. L. Gandy, president, National Coal Association.

Tuesday Afternoon—Technical Session

Call to order 2:30 p.m.
Address by A. P. Prendergast, mechanical superintendent, Texas & Pacific Railway.
Paper by L. K. Sillcox, assistant to president, New York Air Brake Company.
Report of committee on steam turbine locomotives.
Report of committee on Diesel locomotives.

Wednesday Morning—Operating

Call to order 9:30 a.m.
Address by Elisha Lee, vice president, Pennsylvania R. R.
Report of committee on front ends, grates and ash pans.
Report of committee on oil firing practice.

Wednesday Afternoon

Call to order 2 p.m.
Report of committee on coal firing practice.

Thursday Morning—Fuel Handling

Call to order 9:30 a.m.
Address by J. B. Hill, president, N. C. & St. L. R. R.
Bituminous coal conference, report by W. L. Robinson, representative for International Railway Fuel Association.
World power conference, report by H. W. Brooks, representative for International Railway Fuel Association.
Report of committee on cooperation with Railway Accounting Officers' Association.
Report of committee on fuel distribution and statistics.

Thursday Afternoon

Call to order 2 p.m.
Report of committee on fuel bulletins.
Report of committee on fuel stations.
Report of committee on inspection and preparation of coal.

Friday Morning—Mechanical Session

Call to order 9:30 a.m.
Report of committee on coal fired power plants.
Report of committee on oil fired power plants.
Report of committee on new locomotive economy devices.

Business Session

Report of committee on constitution and by-laws.
Election of officers.
Report of secretary-treasurer.
Report of auditing committee.

Entertainment Features

Arranged by Int. Ry. Supplymen's Assn.

Tuesday Evening

8:30 p.m.—Grand Ball Room—Cotillion

Wednesday Afternoon

2:15 p.m. Ladies' theater party

Wednesday Evening

Grand Ball Room—8:15 p.m. to 12 a.m. The Kilties and other features, informal dancing

Thursday Afternoon

12:30 p.m. Ladies' luncheon and style show, Marshall Field & Co.

Thursday Evening

Grand Ball Room—6:30 p.m. sharp Banquet, followed by informal dancing

Joint Fuel Committee

With the idea of fostering trade relation contacts the National Coal Association, with headquarters at the Southern Building, Washington, has accepted an invitation of the International Railway Fuel Association to participate in a joint meeting to consider fuel matters of mutual concern. T. C. Hudson, assistant general superintendent of motive power, Canadian National, Toronto, and president of the International Railway Fuel Association, has appointed the following committee to represent his association: Chairman, C. H. Dyson, fuel agent, Baltimore & Ohio; C. H. Hoinville, fuel agent, Atchison, Topeka & Santa Fe; T. Duff Smith, lake forwarding agent, Canadian National; Robert Collett, fuel agent, St. Louis-San Francisco, and C. M. Butler, fuel agent, Atlantic Coast Lines.

The following committee has been appointed to represent the National Coal Association: Chairman, C. H. Jenkins, vice president, Hutchinson Coal Company, Fairmont, W. Va.; D. H. Barger, president, Monarch Smokeless Coal Company, Shawsville, Va.; H. L. Findlay, vice president, Youghiogheny & Ohio Coal Company, Cleveland; L. C. Madeira, III, assistant to president, Madeira, Hill & Company, Philadelphia; Rice Miller, vice president, Hillsboro Coal Company, Hillsboro, Ill., and H. A. Requa, vice president, South Chicago Coal & Dock Company, Chicago.

First of Twenty Fast Freight Engines, 4-8-4 Pocono Type Built for the Lackawanna by the American Locomotive Company.

Lackawanna's New Super Power

Redesigning Pacifics As Switchers

By T. T. Maxey

NEW SUPER-POWER locomotives in main line service have achieved such remarkable economies in the past year, both in speeding up traffic and in decreasing fuel consumption that the Lackawanna contracted, some time ago, with the American Locomotive Company for 20 fast freight engines of the Pocono type, 4-8-4, for main line use runs between Buffalo and Hoboken. The first of these was on exhibition March 25 in the company's passenger terminal at Hoboken.

The new fleet of super-power locomotives will release a number of fast freight locomotives of the Pacific type, which are now being utilized in this service. These engines now exert a minimum tractive effort of 43,100 pounds, having 69 inch drivers, cylinders 25 inches in diameter with 28 inch stroke, with a driving wheel base of 13 feet, engine 33 feet, 10 inches, engine and tender 66 feet, 4 inches, the drivers carrying a weight of 186,500 pounds—weight of locomotive 286,000 pounds, tender 164,000—total 450,600 pounds.

Having been impressed by the possibilities in higher-powered switching engines, the company next decided to re-construct the released Pacific type engines, turning them into higher-powered switchers, the entire work being done in the company's locomotive shops at Scranton, Pa. The first of these reconstructed engines has remarkably attractive stream lines, special efforts having been made to so arrange the various accessories as not to affect the general appearance of the engine.

The first of the remodelled engines has been turned out, an 0-8-0 super-power switcher, renumbered 201. Its tractive power has been increased to 67,300 pounds, with 27-inch cylinders at 30-inch stroke with driving wheels of 58-inch diameter. The firebox dimensions, 111⅛ inches long by 75¼ inches wide, have not been disturbed, but the inside diameter of the boiler has been reduced from 77-15/16 inches to 76¾ inches and the steam pressure has been increased from 200 to 210 pounds. The flue arrangement also remains the same. The driving wheel base has been increased to 16 feet and the wheel base of engine and tender reduced to 53 feet, 4 inches. The weight of the remodelled engine is 258,000 pounds and of engine and tender 422,600 pounds.

The tubes and flues have an evaporating surface of 3,000 square feet, firebox 200 square feet, arch tubes 31 square feet, total 3,231 square feet. The superheated surface has 768 square feet and the grate area is 58 square feet. The factor of adhesion is 3.83. Tender capacity, 9,000 gallons, 10 tons of coal.

The principal features of the redesign consists of utilizing only a part of the boiler of the former type. This entailed the discarding of part of the first course of the boiler, all the running gear being replaced in its entirety which included 6-inch carbon vanadium steel frames, weighing approximately 20,690 lbs., the necessary crossties, braces, etc., new cylinders weighing approximately 19,000 lbs., being 27 inches in diameter with 30-inch stroke and 11-inch piston valves, Walschaert valve gear with 6½-inch valve travel.

The driving wheels are fitted with tires four inches thick, being 58 inches in diameter, with carbon vanadium steel side and main rods of the floating bushing type.

The force feed, automatic mechanical lubricator provided will take care of the lubrication of the cylinders, valves, guides and air pumps. The air pumps are operated by superheated steam instead of the conventional saturated steam. The cylinder cocks are of the direct pneumatic type. The throttle valve is of the latest improved multiple-poppet type, and is incorporated within the superheater header immediately over the steam pipes leading to the cylinders.

In the designing of this super-power switch engine, the thought in mind was not only to build a locomotive of the most powerful design, but also to develop the design in such a manner as to make it unusually convenient and easy for the enginemen to operate. The throttle lever, power reverse lever, brake valves and all appurtenances are placed in the most

One of the Lackawanna's Pacific Type Engines Released by the New Power, and Re-designed for Switching Work as Shown in the Lower Picture.

convenient as well as compact form and at the same time leaving as much room in the cab as possible for the engineer. The usual cab turret has been placed outside and ahead of the cab, thereby removing the attendant piping from the cab. The conventional steam chime whistle of former type has been replaced by the more modern pneuphonic horn.

The tender is of the improved clear vision type, four wheel equalizer-equipped trucks, with underframe of steel fabrication, while both front and rear couplers are of the most improved design with draft gear arrangement.

Not only was the entire job executed in the Lackawanna's locomotive shop, but all of the grey iron castings, including the cylinders, were made in the foundry. The necessary forgings were all made in the blacksmithing department of this plant.

So sure are the officials of the road that a new chapter has been written in the book of efficient railroading, that authority to remodel similarly six additional engines of the same type has been granted.

Engine 201 has been sent to the big classification yard at East Binghamton, N. Y., for service in breaking up and classifying the many mixed trains arriving daily, and speed up the dispatching of freight to Syracuse, Utica, Buffalo and Hoboken. When finished the other remodelled engines will be assigned to other points on the system, such as Elmyra and Buffalo, N. Y., Scranton, Pa., Port Morris and Secaucus, (New York Transfer) N. J., where exceptionally heavy yard service is a part of every day's work.

Now for Long Distance Refrigeration

The new ship "Zealandic" for the New Zealand-London service arrived in New Zealand recently on her maiden voyage. Of her total capacity of about 666,000 cubic feet, about 404,000 cubic feet are refrigerated. Two horizontal CO_2 machines, each directly driven by variable speed electric motors, four separate CO_2 condensers and four evaporators are provided. The evaporators, brine-return tanks and brine-control fittings are installed in an insulated chamber, the brine system being arranged for the circulation of brine at different temperatures to suit the various classes of cooled cargo. The brine is circulated by four electrically driven centrifugal pumps, and these are fitted close to the evaporator room. An ice-making tank is provided in one of the provision chambers.

On the Cover

The picture on the cover for this issue is reproduced through the courtesy of The Nation's Business. The photographic possibilities of night scenes in great terminals are, we believe, emphasized most artistically in this very unusual picture.

Here We Have the 1156, Pacific, Rebuilt and Numbered 201, Now a Powerful Switcher With Interesting Features Described in This Article.

When the Golden Spike Was Driven At Cream Ridge

By H. P. Dreyer

Four Old Time Hannibal Enginemen, Now on the Pension List. Left to Right: A. L. Lucas, C. H. Leaport, H. L. Anderson, George Downs.

BETWEEN Chillicothe and Cream Ridge, Mo., two and a half miles west of the latter point—no longer a town—hidden for years in the weeds, but now restored, whitewashed and fenced in, is a small monument to the pioneer railroad men of Missouri. An inscription says:

> Construction forces from Hannibal on the East and St. Joseph on the West, met at this point at 7 a.m., February 13, 1859, and made the connection which completed the Hannibal & St. Joseph Railroad across the state of Missouri.

The 70th anniversary of this interesting and important event in railroad construction history was celebrated informally in February at Brookfield by a band of the faithful, a few of whom still remain, aided by their successors—for this is now a part of the great Burlington System. The official and more formal ceremony befitting such circumstances is to take place next month, probably May 1, the tentative date selected.

Of course most and possibly all of the original pioneers present at the ceremonies described on the little monument have long since gone to their reward, but a few old-timers remain, and these, with important railroad and state officials, will be in charge of the big celebration. Among those slated for personal appearance are Governor Caulfield of Missouri and his staff; F. E. Williamson, president of the Burlington, with most of the chief members of the road's management, including, naturally, the general manager, W. F. Thiehoff, who was a brakeman years ago on the old Hannibal & St. Joseph; and numerous important citizens, many of whom doubtless will make "a few well chosen remarks." Excursion trains will be run from St. Louis and Kansas City to Brookfield, and after the customary parade and speeches the trains will go to Cream Ridge so the visitors may see the monument, erected to mark not only the finish of construction work, but the end, also, of the famous poney express and the overland coaches.

The building of the Hannibal & St. Joseph followed years of agitation by newspapers, among them the St. Joseph Gazette. This paper began its urgings as early as 1846, and like all worthwhile papers expecting to achieve anything, kept on urging until finally, February 24, 1853, the Missouri legislature passed an act which declared, among other things, that:

> It shall be lawful for the said Hannibal & St. Joseph Railroad Company to construct, extend, maintain and operate its railroad to any point or points west of the boundary of this state, and to enter into contract for that purpose.

In the opinion of some quibblers the boundary reference in this act is a trifle ambiguous, but let that go. The company had been organized at Hannibal in January, 1851. Indeed actual construction began in that year, before the gabby legislators had made up their minds to authorize the work, but this also is another point unworthy of discussion.

By November, 1855, about 25 miles of the grading had been finished and was ready for steel. June 1, 1857, the track was laid to Hunnewell, 37 miles west of Hannibal; November 29, 1858, a hundred miles west of Hannibal and January 26, 1859, to a point 114 miles west of Hannibal or about to what is now known as Meadville.

Construction started at St. Joseph prior to 1857. In October, that year, several miles of the track was laid from St. Joseph eastward. On August 1, 1858, the road was completed ten miles east of St. Joseph; November 7, 1858, 46 miles east of St. Joseph; December 5, 1858, 53 miles east of St. Joseph, and so on until February 13, 1859, when the two construction gangs from the east and the west met near Cream Ridge and someone drove the golden spike that finished the first railroad across North Missouri.

Through traffic was started Feb-

W. F. Thiehoff.

ruary 15. The first through passenger train left St. Joseph on February 14. E. Sleppy was engineer and Benjamin H. Colt the conductor. The first train from Hannibal to St. Joseph, the same day, was in charge of George Thompson.

History is more or less silent about the celebration at Cream Ridge on the morning of February 13, 1859, when the last spike was driven, but old-timers say the governor, several state officials, military dignitaries, and railroad officials and citizens were on hand arriving on a special train and there were many speeches and predictions made of a great future for Missouri.

The construction of the line from Cameron Junction to Kansas City began in November, 1860, by the Kansas City, Galveston & Lake Superior Railroad. The railroad was finished and opened for traffic from Cameron Junction to North Kansas City on November 30, 1867. Work on the Kansas City Bridge began February 27, 1867, and was completed in June, 1869. Traffic into Kansas City was opened July 4, 1869.

The Hannibal & St. Joseph was leased to the Burlington January 1, 1901, and afterward was bought and made part of its system.

Of the original Hannibal & St. Joseph employes very few are alive. At Brookfield one, R. H. Allen, chief dispatcher for the Burlington, is still in the service and is celebrating this year his 50th anniversary for continuous service with the Hannibal & St. Joseph and the Burlington.

Besides Allen there are four veterans of the Hannibal still living at Brookfield and pensioned by the Burlington. C. H. Leapart, 78 years old, entered the service in January, 1870, and was pensioned in 1922. George Downs entered the service in 1875 and was pensioned in 1927. He is 72 years old. H. L. Anderson began in 1893 and was pensioned in 1924. He is 70 years old. A. S. Lucas started in 1885 and was pensioned in 1926. He is 68 years old.

Work reports preserved by the family of I. N. Wilber, former master mechanic, show on reports dated in 1862, that instead of numbers the woodburning locomotives had names and each engine was assigned to a certain engineer. Such choice names as Hannibal, Missouri, St. Joseph, R. M. Stewart, Stranger, Oneida, Mohegan, Ottawa, Comanche, Dacotah, Omaha, Miami, Chippewa, Apache, Ontario and Seneca were used for the locomotives.

A diary kept by a Catholic priest of those days, Father Hogan, gives interesting facts about travel and rates before the railroad came. Daily stage coaches were run between Hannibal and St. Joseph with 48-hour service one way costing $16 a head and about $4 additional for living expenses on the two days and two nights trip covering 200 miles. Four horses were used, and they were changed at various points en route. The trip was a hard one. It took a strong constitution to live through it. The stage coaches were small and badly crowded and besides outlaws, Indians and wild animals had to be fought off. In the winter the roads were bad and sometimes lost entirely when covered with snow. In the spring the floods came, bridges were washed out and the bottom lands flooded. Travel was no joy in those days.

R. H. Allen.

If we could first know where we are and whither we are going, we could better judge what to do, and how to do it.—*Abraham Lincoln.*

It is a bitter disappointment when you have sown benefits to reap injuries.—*Plautus.*

We always love those who admire us, and we do not always love those whom we admire.—*La Rochefoucauld.*

The Men Are Standing On All That Is Left of Cream Ridge, Where the Golden Spike Was Driven, Seventy Years Ago.

Everybody Likes A Locomotive

A Marvel of Speed and Power

By W. G. Black

Mechanical Assistant to President
The Erie Railroad

THE modern locomotive is a marvel of design, power and speed. It needs to be, for the demands upon it are enormous. Long locomotive runs in freight and passenger service have become an established fact in present day railroad practice. Almost every railroad in the country is running passenger trains 300 miles and freight trains 200 miles without changing engines. Some roads have gone even further than this in the length of runs.

The results desired from the modern locomotive cannot be obtained by long runs alone. The locomotive must also be employed in effective service a large part of the time. This requires a minimum of terminal delay, a minimum of road delay, and a minimum of shop time.

Everybody likes an engine, and the modern locomotive is worthy of regard.

At the plant of a locomotive builder, the railroad company usually maintains a corps of competent inspectors who pass upon the quality of workmanship and the dependability of this powerful locomotive. These men are thoroughly schooled in every detail of their work and have for their guidance elaborate specifications and blue prints which have been carefully compiled by the mechanical engineering departments of the railroad and of the builder. Each and every detailed part of the boiler is inspected both as to material and workmanship and must be pronounced O.K. by these inspectors before it is assembled. Steam and water tests must fulfill the government requirements and meet the specifications to the satisfaction of the inspectors before it is advanced to the erecting floor. In the same manner the cylinders, frames, wheels, axles, crank pins, connecting rods and in fact every detail must agree with the specifications and blue prints to the satisfaction of the inspector, before they are assembled.

When the locomotive is completed to that stage where it is ready to develop its own steam, the inspector is particular about steam leaks, proper valve setting, correct adjustment of brake work, ample clearance between moving parts, fitting of bolts, application of nuts, pipe clamps, split keys and cotter pins.

As soon as the locomotive is received by the railroad it is the duty of the railroad mechanical department to properly maintain the locomotive and keep it in service until the proper time for shopping for general repairs.

W. G. Black.

Thus the general foreman of the enginehouse to which the new power is assigned comes into the spotlight with his duties clearly outlined. He must maintain this locomotive in such a manner that it will continue to give good service in long locomotive runs.

The general foreman at the enginehouse must become thoroughly familiar with all the details of the power under his care. As soon as new equipment is received, he must become thoroughly conversant with its operation, maintenance, possible replacements and any peculiarities of the equipment. He must educate his entire organization; inspectors, sub-foremen, gang foremen, mechanics and all others on the maintenance and peculiarities of the equipment.

It is essential that the engine inspectors in the enginehouse be absolutely competent and trustworthy with full confidence and respect for their general foreman. The subforemen must take a personal pride and interest in their supervision in order to obtain a high quality of workmanship and a completion of all work reported. Engine dispatchers and mechanics preparing an engine to be dispatched must be absolutely dependable and thoroughly familiar with the demands placed upon the locomotives.

Then with a good, firm, competent organization working harmoniously with him, the general foreman can be sure of continued service of the equipment under his care with a minmum of road delays and a minimum of terminal delays.

The general foreman at a terminal can also greatly assist in minimizing the shopping time of the locomotive.

The practice of shopping locomotives on a mileage basis is almost universal. About three months before time for shopping an engine, the general foreman should marshal his forces, make a complete personal inspection of the engine, and prepare a detailed statement of the repairs and replacements necessary. This statement should be furnished the back shop to enable them to order the necessary material and make proper preparation for receiving the engine. A good practice is to call together all subforemen, inspectors and engine dispatchers with road foremen, traveling engineers and traveling firemen and hold an open discussion on each engine due for shopping. In this way many points tending toward betterment of power will be brought out.

The process of repairing and rebuilding the locomotive in the railroad back shop should produce a locomotive nearly equal to the one originally turned out from the plant of the builder.

The inspections in the back shop usually fall upon the shoulders of a

few inspectors and generally receive the final approval of the supervision.

The contribution of the back shop general foreman becomes evident. He and his entire organization must be thoroughly schooled in the severe demands placed upon the locomotives used in long runs and must be prepared to complete those repairs which are the foundation of long locomotive runs. The repairs which guard against possible engine failures might be summarized as follows:

1—Turning of tires. 2—Truing up journals. 3—Truing up crank pins. 4—Fitting of all bearings. 5—Fitting of bolts—application of cotters and split keys. 6—Necessary repairs to boiler. 7—Necessary repairs to tender. 8—Attention to all accessories including air pumps, feed water pumps, stokers, injectors, lubricators, etc. 9—Checking valve gear.

If these repairs are properly completed the locomotive will leave the shop in the same general condition which it left the plant of the builder; requiring only a minimum of running repairs and maintenance at the roundhouse.

In order that the locomotives go through the shop with the least amount of delay, the general foreman must always be on the alert to speed up production without impairing the quality of workmanship. He must develop a systematic and effective schedule of the work going through the shop and he must obtain the cooperation of all departments in the shop to carry out this schedule. This is often accomplished by daily conferences with departmental heads at the close of the day's work and the maintenance of a daily progress record as an indication of the extent to which the schedules are being maintained.

The furnishing of the proper material is a very important adjunct to maximum production and first class workmanship. When improper and unsatisfactory material is received, it is the duty of the general foreman to report the facts to the proper authorities who also have a part to contribute toward long runs and efficient shop production.

All general foremen should welcome an inspection, be it from his own inspector, a division inspector or one covering the entire system. He should consider their reports as his best friend because they give him first hand information of any improper or incomplete repairs made by his forces and thereby enable him to further instruct workmen who are turning out unsatisfactory work which is liable for future engine failures.

When an engine leaves the shop, the everlasting question before the general foreman should be—"What can I do to make it a better locomotive; one that will give absolutely satisfactory service on the road with a minimum of maintenance of the enginehouse?"

The mechanical engineering forces and the shop forces should work together in close unity. The mechanical engineering forces should visit the shops regularly and go over in detail the different items that are troublesome to the shop and in turn the shop forces should visit the offices of the mechanical engineer regularly for conference so that as changes are contemplated they will be applied correctly according to instructions. In this way, shop instructions, which are virtually specifications, and blue prints which originate in the office of the mechanical engineer, will be of the same value to the shop as were the specifications and blue prints which the railroad expected the builder to adhere to in construction of the new power.

It has been rightfully said that the success of a railroad is a factor of the dependability of its locomotives and by following these suggestions, the general foreman can be sure that he is contributing his part to that dependability and to the success of long locomotive runs.

Stop, Look and Live

The legal requirement that motorists approaching a railway crossing must "Stop, look and listen" if they can not see that the crossing is clear before they venture upon it, again won a court victory for the Pacific Electric at Santa Ana, Cal., March 25, when the $30,301 damage action of Jacob Vilhauer of Long Beach was ousted from court on a motion for non-suit.

How May Trains Be Protected?

Does a railroad train strike an automobile, or does the automobile strike a train? Many people believe the former. Yet 30 per cent of grade crossing accidents on Frisco Lines in 1928 were caused by motorists driving into the engine or cars of trains, safety supervisors on the railroad have found. Several drivers ran through crossing gates and past watchmen to drive into trains, and one man drove into the fortieth car in a moving freight train.

One of the Erie's Latest Acquirements for the Freight Service.

Editorial Comment

Safety First For the Aviators

One of the most experienced pilots in the country was asked, a few days ago, to give frankly his opinion of the causes responsible for some of the harrowing air disasters recorded in the last few months.

"Pilots," was the reply, "pilots and lack of inspection before going up; careless inspection and, where light machines are involved, premature flying, solo or with an instructor. So far as the big machines are concerned many if not most of the bad crashes might have been averted by careful inspection. Of course, if a man is caught in a bad storm; if he is piloting a single motor machine and hasn't altitude enough to choose his landing field nothing can prevent a crash. Pilots must study the Safety First work of the railroads."

This is no place to discuss the relative merits of different motors, at least in the absence of official report. The department of commerce will make public its findings in good time, and when the facts are known proper precautions will be taken, of course, to avoid a similar crash.

The record of the Western Air Express on the West Coast is proof enough that eternal vigilance and safety first make up the price of life for air travelers. That company's pilots have flown millions of miles with mail and passengers without anything worse than a forced landing due to weather conditions. Furthermore that company takes no chances on anything with anyone. Persons who know how thorough are its precautions feel as safe in its planes as if flying with Lindbergh. The length to which it goes for safety's sake was shown one day in March when its pilots at Salt Lake City declined to start from that place with Nurmi, the great runner for whom thousands of spectators were waiting in Los Angeles. Because visibility was almost non-existent, the plane remained at Salt Lake and Nurmi made no race that day.

It may be noticed that when conditions are wrong Colonel Lindbergh never hesitates to stay on the ground or to return to his hangar if already started when the air conditions turn bad. It will be a fine thing for all pilots to follow his example. Your friends may laugh at you for coming back, but it is much better to have them laugh than weep.

Why Frisco Trains Are On Time

A passenger on Frisco Lines trains will be late to his destination just five times in every 100 rides if that road keeps on the way it is now acting. This deduction is made from the annual report of the general manager, showing that 58,884 of the 61,863 passenger trains operated in 1928 were on time. Thus, passenger trains on Frisco Lines operated 95.2 per cent on time in 1928.

The continued on-time record of the Frisco trains led this magazine to request an expression from President J. M. Kurn.

"As in all other records of achievement," says Mr. Kurn's letter, "there are good reasons for the success of the Frisco Lines in bringing its passenger train performance up to a point of efficiency that would have been almost unbelievable on any railroad a few years ago. During the last five years the Frisco has improved tremendously in several directions. Power is in first class condition, and equipment troubles have been reduced materially, all of which tends to permit good time with trains. Train dispatchers are giving passenger trains special attention, and getting them over the road without interference with other trains. Meeting points are carefully watched to cut passenger train delay to the minimum.

"There has been built up in train crews a pride in keeping passenger trains on time. Station forces are helping in this also by being 'on their toes' at stations where trains stop to handle baggage, mail and express, and load passengers. The cooperation of terminal forces has been secured in keeping switch engines and 'drags' out of the way of passenger trains, and this, too, has been of material assistance.

"Another important factor in keeping the trains on time is the immediate handling by wire of all reports every morning wherein delays are reported, and following them up for explanation.

"An item which cannot be overlooked in this connection is the improved road bed conditions brought about by laying heavier steel, and the improvement in ballast and tie conditions resulting in a track situation that enables maintaining maximum speed for passenger trains on all heavy main line territory.

"The engines used on this high-speed road bed have been of the latest and most modern type, capable of maintaining speed up grade, and of reaching maximum speed quickly after stops.

"Notwithstanding that the location of this road in, over, and through the Ozark Mountains presents grave operating problems, yet wonderful skill has been developed by the engineers in handling passenger trains, many of which are very long, consisting frequently of 18 or 20 cars, with freedom from shock in starting and stopping, and general elimination of rough handling.

"With these factors, heavier and improved power, better road bed conditions and splendid performance on the part of employes on trains, at stations and yards, this high grade performance has been made possible."

Etiquette in the Diner

A paragraph was printed in these columns, a few months ago, about the propriety of using a knife in eating salad, at least while traveling, and letters have continued ever since to dribble in from frivolous persons. One, more technical than others, wishes to know whether we intended to say salad should be eaten with a knife or only cut. Another, bringing up a subject not at all germane to the question under discussion, declares that a "lady" should never enter the dining car without her hat, and furthermore that she should wear gloves, even on long journeys. There are no valid objections to a woman's wearing her hat anywhere, except in a theater, but as to gloves, what, may we inquire, is she to do in eating chicken? The gloves almost certainly would be soiled although they might protect the fingers.

Another writer says he has noticed that few persons

order fruit for breakfast in dining cars; 35½ per cent, he says, are in this class. Of course, these are the home-trained chaps who have no expense account. Five or six prunes with a little cream cost 25 or 30 cents in a diner. You can get a pound of the things at home for less money.

And at this stage along comes the efficient manager of the Southern Pacific dining cars with the glad news that not only is it proper to use a knife in eating (or cutting) salad, but the company is now providing a knife made especially for the purpose.

The Recapture Clause

The recapture clause of the Transportation Act, the constitutionality of which was upheld by the United States Supreme Court is, without a doubt, the most irritating law with which railroads have to deal. Not even the so-called Pullman surcharge which, after all, is not really a Pullman charge at all, or the government's promise of rates high enough to return 5¾ per cent, need be excepted. Right now much space is being used, and many a sleepy luncheon club is bored stiff with the subject.

A. J. County, vice president of the Pennsylvania Railroad, offers a sensible solution, although the only effective and thoroughly American thing to do is to repeal the law. Says Mr. County:

> As a business proposition, there should be some responsibility to allow these roads to earn about 6 per cent every year, or recapture should not be made effective except for at least five-year periods, in order accurately to determine whether railroad net returns are reasonable. Nothing better could occur for the good of the nation than that all important railroad systems should be in the recapture class, because it would mean that greater progress could be made and better service supplied the country. Today, the railroads stand committed, by law, to recapture, without any guarantee of earnings.

Under private ownership there is no good reason why the railroads should have a guarantee of earnings. What the roads do want, however, is the government's fair observance of the law as set forth in the Transportation Act, and this the Interstate Commerce Commission, the government's representative body, in making rates has not done since the law was enacted.

In the Chicago Journal of Commerce, recently, George Gerry Boardman, one of the best informed men in that city on railroad matters, particularly law, seems to get off on the wrong foot when he declares the government has no right to "re-capture" something it never had in its possession. This is an appealing argument, especially gaining the sympathy of railroad men, but those who use it overlook the Supreme Court's decision in the Dayton-Goose Creek case. Boardman brings in the old suggestion that such recapture is a violation of the Fifth Amendment with respect to just compensation and due process.

The points Boardman mentions were not overlooked by the Supreme Court. In the Goose Creek decision the court said clearly that money in excess of 6 per cent was in the railroads' care only as trustees; that it never did belong to them. This is the exact language:

> We have been greatly pressed with the argument that the cutting down of income actually received by the carrier for its service to a so-called fair return is a plain appropriation of its property without any compensation, that the income it receives for the use of its property is as much protected by the Fifth Amendment as the property itself.
>
> The statute declares the carrier to be only a trustee for the excess over a fair return received by it. Though in its possession, the excess never becomes its property and it accepts custody of the product of all the rate with this understanding.
>
> It is clear, therefore, that the carrier never has such a title to the excess as to render the recapture of it by the government a taking without due process.

By training and choice we have been brought up to have great respect for the United States Supreme Court. It is impossible to forget, however, that such a body, being made up of men, does make mistakes. Fortunately it is no crime in this country to draw attention to them. The Supreme Court view of property rights has changed very greatly in the last generation. With profound respect we marvel often over the wonders of the Constitution discovered by this court. What a fine thing it would be if the sacred circle surrounding it might be removed just long enough for the people to learn how such miracles are done, by what strange deductions it arrives at certain conclusions.

As in most cases, however serious, there is real humor to be found in the recapture provisions if only one has time for such enjoyment. The clause, as most persons suppose, was inserted to enable so-called weak roads to borrow from a sinking fund to be built up by the government out of the money taken from the railroads. The funny thing about this—if you can enjoy a joke of this kind—is that as the law now reads none of the weaklings could borrow a dollar from the fund, if there is one. The standards to be met by borrowers are terrifying, and few if any of the under dogs could qualify.

Nevertheless the recapture clause is a threat against enterprise and energy. It hurts the earning roads. It kills ambition. It does much, perhaps, for perfect maintenance of way. The only thing to do with it, in perfect justice, is repeal it.

The Editorial of This Edition

In Boston, the other day, during a meeting of trainmen and enginemen called to decide upon certain demands not relevant to this writing, Samuel E. Winslow, chairman of the United States Board of Mediation, spoke of the success of his board in "keeping labor troubles out of sight and in preventing them." According to the telegraphic report, Timothy Shea, assistant president of the engineers, thereupon declared, "We must go to congress for a bill of rights to protect men who are being cast into the junk heap." Alexander F. Whitney, president of the trainmen's organization, thereupon added this to the situation, according to the newspapers, "I do not believe the inventor of labor-saving machinery should reap all the returns from his invention, but only a share, so that the employer and employe, especially the latter, who has been hardest hit, may share in the increased production through higher wages and fewer working hours.

"No nation can continue great," he concluded, "unless it corrects its social evils, and unemployment is one of the greatest of these evils."

The two leaders in the discussion at Boston, March 31, reopened the same old irritating wound that has been breaking out, generation after generation, since the dawn of written history. Perhaps we shall never have done with it. In every age there are men who can not keep in step with progress and resent all "new-fangled things" merely because they are "new-fangled."

Machine methods always have been opposed in certain quarters and, in the opinion of some rather well-qualified authorities, with what seemed at least to be

real reason. A machine that takes the place of men naturally is not hailed enthusiastically. Nevertheless men have gone right on studying, experimenting day and night, to find new methods and machinery able to release human beings from labor. In our own country the first instance of this is noted in the history of the Pilgrims. It was only eight years after their landing at Plymouth Rock that they began to develop the numerous sources of water power so abundant in what is New England today. Indeed Endicott's first colony erected a water power mill for grinding grain in 1628. That was a labor-saving machine which released men for other work that had to be done. Eli Whitney's cotton gin, invented in 1793, did more than any other one thing to revive and make doubly profitable the plantation system of agriculture and slave labor in the South. Some economists say it brought about the Civil War.

The heads of great labor organizations in this country are not at all ignorant. Possibly they have read as studiously as the average man in the world's economic history. But if, through some incomprehensible oversight, they have not read "The Present Economic Revolution in the United States," Thomas Nixon Carter's very wonderful book, issued about three years ago, that volume is commended to them. Another, the "Department of the Machine Process," a part of "Problem Economics," by Keezer, Cutler and Garfield of North Carolina, 1928, will prove amazingly informative to anyone who imagines the grievances of his craft to be the chief troubles of the world. With overwhelmingly genuine sympathy for men who believe themselves unjustly treated, we suggest careful reading of the books mentioned. Some of us are inclined to jump the track now and then and say things we dislike to see afterward in print. Good and careful reading sometimes prevents this.

Regardless, however, of the environment or the stimulating circumstances, it is doubtful whether any big labor leaders really believe that ultimately the members of their organizations do not profit by reason of machinery development. It would take infinitely more space than can be given the subject here to show how the opposite effect has been recorded, particularly in the last hundred years. We should have no engines and no trains, no steamships, or much of anything else in the way of labor-saving machinery and the luxuries of life were it not for the persistent seeking of men after inventions that will cut down work, make life easier and pleasanter, and increase the profits. If it were not for this urge for labor-saving machinery all these labor leaders would have much more burdensome work to do than they now handle, which is equally true of all of us. Perish the memory of the old Washington hand press, whose lever we pulled long years ago in a country print shop.

Every time an improvement has been proposed someone has fought it: turnpikes, stage coaches, railroads, steamships, airplanes. Some men are so eternally opposed to advancement that they still use shaving mugs. Machinery, they declare, deprives men of their jobs or puts them into a lower plane. It doesn't seem to have done it in this country, and especially not in the railroad field. Employes in that industry, as history shows, are the aristocrats of labor; and especially are the engineers in this classification. Division superintendents in many instances are below them in earning power. Indeed skilled labor has overtaken and very often has passed the "white-collar" job-holders. Still the alarmists go on alarming. The Diesel engine, they say, will wipe out the steam locomotive. The airplane will do away with railroads. Labor is in for a hard time.

True, marvelous things are being done by science, by brains, by machinery. But no one is going to starve. Some one suffers, unfortunately, in almost every great advancement in method, efficiency, machinery; they always have, and until they find their new niche, until society has again placed them in earning jobs they do take a lower place. Reaping machines as now perfected have displaced thousands of farm workers. Here and there some machine does the work of 50 men, but eventually the 50 are absorbed somewhere. In our country the living standard and the average wage never have been so high. Laborers nowdays go to their work in their own automobiles. We all have better homes, better clothes, more time for recreation, and labor-saving machinery and the other products of science have made this possible.

Improved machinery has brought about extensions of great enterprises and thus made work for thousands, not, perhaps, in the same jobs, but with the better chance to get ahead in the world. The internal combustion, or Otto gas engine of 1870 robbed thousands of farm women of their jobs pumping water for stock, but it gave us, as a result, or at least it may be blamed or credited with making possible the 24 million automotive vehicles now ramping around everywhere and doing their best to beat the trains over the grade crossings. Even the grade crossing accidents make jobs for other men and women. Railroad passengers may have taken to the highway in these things, but the reports show that the loss of their fares has been amply compensated in heavier freight traffic. Indeed all forms of manufacturing created through the discoveries of science produce new business, new traffic for railroads, as shown so convincingly in the article in this issue by President Powell of the Chicago & Eastern Illinois.

Cheap automobiles are commonplace today and millions of men "thrown out of employment by the machine age," are kept busy repairing them. All these motor cars and their parts, the trucks and other materials make traffic for railroads. And railroads we shall always have. If their employes go at it thriftily they might, in eight or ten years own a controlling interest in all such properties. Consolidations, about which the leaders complain, will not displace enough employes to disturb the economic situation.

Above all, don't waste breath worrying about the Good Old Times. Forget them. Remember the Scriptural admonition: "Putting behind me all the things that are past, looking only to the future, let us press forward for the prize." We can win this prize by ignoring bad advice, doing the best we can in our jobs, voting regularly and right, living up to the highest ideals of citizenship.

A Grade Crossing Decision

A railroad company may not replace human flagmen with electric signaling devices at dangerous grade crossings where a city ordinance requires the former method of safeguarding the traveling public, the Supreme Court of the United States has just ruled in a recent case.

The decision upholds the power of a city to determine in what manner dangerous grade crossings within its limits shall be protected.

The ordinance involved in the decision was passed by Memphis, Tenn., 40 years ago. It required the presence of flagmen swinging flags in daytime, and lighted lanterns in the night at all railroad crossings. One rail-

road company removed its watchman and substituted mechanical signaling apparatus. A motorist was killed at one of the crossings and the carrier's violation of the ordinance was urged as the proximate cause of the accident.

The Tennessee supreme court upheld the validity of the ordinance and the judgment was affirmed.

Don't Be Alarmed

Airplanes won't put railroads out of business for quite a while. In the United States, United Kingdom, France, Germany, Italy, Netherlands, Austria, Denmark, Poland, Sweden and Switzerland, flying more than 18,000,000 miles in 1927, carried only about 5,000 tons of freight and express. The railways of these countries haul annually more than 500,000 times this quantity.

The Safe Way to Safety

The subject of automatic connectors for passengers and freight cars has, for many years, been an important one conversationally. Many have been the discussions and arguments, and great the faith and patience of the men who have put their money, their time and their brains into the solving of the problem.

There are few men in railroad service today who do not admit the practical need, the economic possibilities, and the safety features of automatically connecting the air and steam lines between cars. Yet probably less has been done by the railroads as a whole to cooperate in the testing and developing of connectors than of any other device. Objections galore have been presented, largely as subterfuges, by the railroad men. The tiresome old bogey—interchange—probably has been foremost of these. Railroad managements have seemed to believe that in the case of the connector they should demand at the start an absolutely perfect product, and have set up theoretical objections to all connectors, objections whose value could be proved only by years of service. At the same time they withheld from the manufacturers the opportunity to place connectors in service. Had the same attitude been adopted toward the automatic coupler, the air brake and other devices it is doubtful whether these life savers ever would have reached their present stage of perfection.

While the manufacturers of connectors have realized the safety features involved, the possibilities in reducing accidents by eliminating the necessity of men going between the cars to couple and uncouple the hose, they have been so sure of the economic value of the automatic connector, due to its ability to speed up terminal operation, to reduce road delays, to prolong the life of the hose, that they have made the safety feature incidental. It has remained for the trainmen to demand its application for their own safety.

The four brotherhoods of train service employes filed with the Interstate Commerce Commission recently a complaint requesting the commission to issue an order requiring the railroads to equip their cars within five years with automatic train-pipe connectors. In this complaint the employes say furthermore, that devices have now been developed that will operate perfectly under all conditions. If the brotherhoods have such faith in this device surely the railroads should have enough confidence, enough regard for the lives and limbs of their men to stop quibbling over details, stop referring the subject to committees, and get down to some practical and extensive service operations during the life of the present generation.

Don't forget there are connectors today that have been in regular service for 25 years. Many cars so equipped are in service in all parts of the country, and under every possible weather condition that have given and still are giving satisfactory results, although not generally in interchange service. Many a railroad employe going through life short of fingers, a hand or an arm, might be whole today if employers had safeguarded him properly. It is from the level of calamities, said Thackeray, that we learn impressive and useful lessons.

The Right Spirit in Management

Railroad managements are considerably elated over what they hail as the beginning of a new spirit of cooperation among trunk lines. This grows out of the announcement by General W. W. Atterbury, president of the Pennsylvania Railroad, that Jay Cooke, president of the road committee of the Pennsylvania, had been nominated for the board of directors of the New York, New Haven & Hartford Railroad. The Pennsylvania, it was disclosed, nominated Mr. Cooke in accordance with a request of the New Haven in order that "the experience and point of view of the Pennsylvania system might be available for the advancement of the New Haven."

The situation brought up to date is described in General Atterbury's letter to John S. Lawrence, treasurer of the New England council. In this letter General Atterbury refers to the fact that the Pennsylvania Railroad had been asked by the management of the New Haven road if it would care to have representation on its board of directors. His reply, he said, was that if the purpose of such representation was merely that the Pennsylvania Railroad, as such, should have a voice in the directorate of the New Haven road for the purpose of protecting or advancing the interests of the Pennsylvania Railroad, he would not care to nominate any one for membership on the board on that basis, but that "if the New Haven management desired Pennsylvania Railroad representation in order that our experience and point of view might be available for advancing the interests of the New Haven, on that basis we would be prepared to nominate candidates for election to the board. But we would see no other reason for any such nomination."

In brief, Mr. Cooke was elected to the New Haven board only to give to that road's management whatever help it might believe him peculiarly fitted to give. And this, we believe, most emphatically is a demonstration of the genuine spirit of cooperation. The Pennsylvania may, in helping the New Haven whenever it can, help itself and the public which both roads serve so admirably.

Cutting Down the Distance

Opening of the Southern Pacific's new line between Klamath Falls, Ore., and Alturas, Cal., this summer, will mark the completion of a building program on which the railroad has spent more than $40,000,000 for the construction of 521 miles of new road.

This construction, most of which is in new territory, was begun in 1920. It gives northern California three main lines and will bring northern California and southern Oregon 211 miles closer to eastern markets. The new track includes the 270 mile Cascade line, the 155 mile Nevada-California-Oregon line, and the 96 mile line between Klamath Falls and Alturas. The Nevada-California-Oregon originally was a narrow guage line and was about to be abandoned when the Southern Pacific acquired it in November, 1926.

How to Increase the Car Load

The Statistician Has the Floor

By O. O. Carr

Illinois Central R. R.

THERE seems to have been a gradual decrease in the load of the average freight car in the last five years, although there has been a substantial increase in the capacity of cars. Part of this decrease may be accounted for by the increase in shipments of automobiles, a light freight carload, there being about four automobiles of the smaller type, and two to three of the larger type in a car. Some commercial firms are carrying smaller stocks of goods, ordering more frequently and requiring smaller car lots, and demanding far more expedient loading and movement, since motor truck competition is constantly introducing innovations in store door handling.

The maximum loading of freight cars is of vital importance during both shortage and car surplus periods. Fully loaded cars mean more cars available, fewer trains to haul, and less congestion in terminals. On L. C. L. and C. L. merchandise freight, the railroad is the supervisor of heavier loading. Some of the things which may assist in bringing about an improvement, if thoroughly analyzed are:

Consolidating, discontinuing and making tri-weekly and semi-weekly merchandise cars out of cars that are now made daily, in which due consideration should be given to competition, transfer platform location, small amount of tonnage loaded in pedler or straight cars, train schedules, etc.

Records will show the amount of tonnage loaded in cars at various stations on the system every day, and the average for a month, for every point or peddling district. From this it is possible to learn where cars are running with light tonnage, (2 to 4 tons), which may be made heavier by consolidating with another pedler car or straight car destined in the vicinity of the two cars now run-

Wide World Photo.

The Railroad Terminal At Genoa, Italy. Pretty Badly Run Down, As Was the Equipment, Under State Ownership and Operation. No Humps, No Retarders, None of the Modern Tools Used by All American Railroad Men.

—Herbert Photo.

Engineers Say This Bridge Across the Grand Canyon Is the Highest in the World. The Bridge Crosses the Canyon Near Lee's Ferry, Ariz. The Span Is 616 Feet Long, and With Approaches 833 Feet. It Is 485 Feet Above the Colorado River.

ning, or the making of a car tri-weekly service instead of daily.

Some cars L. C. L. freight loaded on Fridays for points 300 to 400 miles distant destinations may be loaded more heavily by holding them over and consolidating with Saturday's loading and still effect Monday morning's delivery. Likewise, freight loaded two days before a holiday on which freight houses are closed may be handled in similar manner.

Consider consolidating two daily overhead or transfer cars for foreign railroads, now running light.

Consider changing some station schedules making back-up haul, if necessary, to make better time and meet motor truck competition, the additional expense for a back-up haul on car merchandise handled on a regular local freight train, that is not on overtime, for additional coal, water, superheat oil, locomotive repairs and track costs, about $0.023 a mile.

Consider changing routes or forwarding through cars, or those for connecting lines to make better time, changes in foreign lines; time tables may show the necessity for this.

Can freight now being re-worked at the larger terminals be handled at some outside points to better advantage? Will saving in car days or more prompt handling of freight justify night shifts?

Is daily house-spot made in accordance with instructions, as to kind of cars to use?

Are local freight trains bringing into their terminals too many tail-end cars loaded on their district which they could have consolidated?

It is just as important to watch the loading of L. C. L. freight loaded at local stations and by local freight trains, as the loading at the larger points.

Unless it will relieve the car shortage, or the loading of refrigerator cars with merchandise will take goods in direction they may otherwise be moving empty, such cars are uneconomic to load because of the tare weight being about eight tons more than that of the box car, thus creating an increased locomotive and train cost to handle.

Estimate of saving as result of heavier loading of merchandise to save a car by consolidation, etc., on a car moving 200 miles destination.

Were a tri-weekly car made out of a daily schedule car, the saving would be double the $6.80 or $13.60.

The foregoing saving takes no account of about three days' per diem on foreign cars on terminal, enroute to destination and unloading, or the net earning capacity of an ownership car during car shortage periods in competitive fields, when a car is worth more than $1 a day to a railroad.

The average revenue on L. C. L. freight may be roughly estimated at 3rd class rates per 100 pounds, times 100 pounds loaded in a car.

When the ends of coal cars are not fully loaded with coal and a ten-inch heap loaded throughout the length of some designs of coal carrying equipment that will carry it, it means a loss of about 8.5 tons full utilization of car, resulting in loss of additional switching and locomotive and train costs, requiring more trips to handle the same amount of coal tonnage.

Some railroads have found it profitable to pay a bonus to section men after their work hours, or a stipulated contract price to shippers, to bring about the loading of the second and third tiers of cotton in a car, in order to increase the load.

	Per Car
One car less to switch on large terminal by regular employed switch engine not on overtime, for coal, water, locomotive repairs, and track costs at $0.08146 per minute 16.2 minutes, five handlings	$1.31
One less car weight (22 tons) to haul 200 miles at selected items, locomotive, train, car maintenance, classification and track costs $0.0012487 per gross ton one mile	5.49
Saving one Car	$ 6.80
Saving if 100 cars loaded heavier per day	$ 680.00
Saving per year, 300 loading days	$204,000.00

Cleveland Station Ready in 1930

One of the Nation's Big Projects

By Felix J. Koch

It begins to look as if the Cleveland super-union station will be finished some time in 1930 if no extraordinary convulsions of nature or labor forces intervene to prevent it. Notwithstanding the danger in superlatives it is declared, too, that when the big structure finally is ready for occupancy it will rank with the world's great stations. Contractors promise the station for 1930, but set no definite day for the dedication.

Coincident with the Union Station construction now nearing completion, the terminal area is being made the seat of a vast business development embracing a group of giant buildings of distinctive construction and design. This business development is sponsored by the Cleveland Terminals Building Company, a Van Sweringen enterprise.

The first unit of this group, the Terminal Tower, is completed. It is a 52-story building; rising to a height of 708 feet above the concourse level, and forming a new skyline landmark, visible from virtually every part of Greater Cleveland.

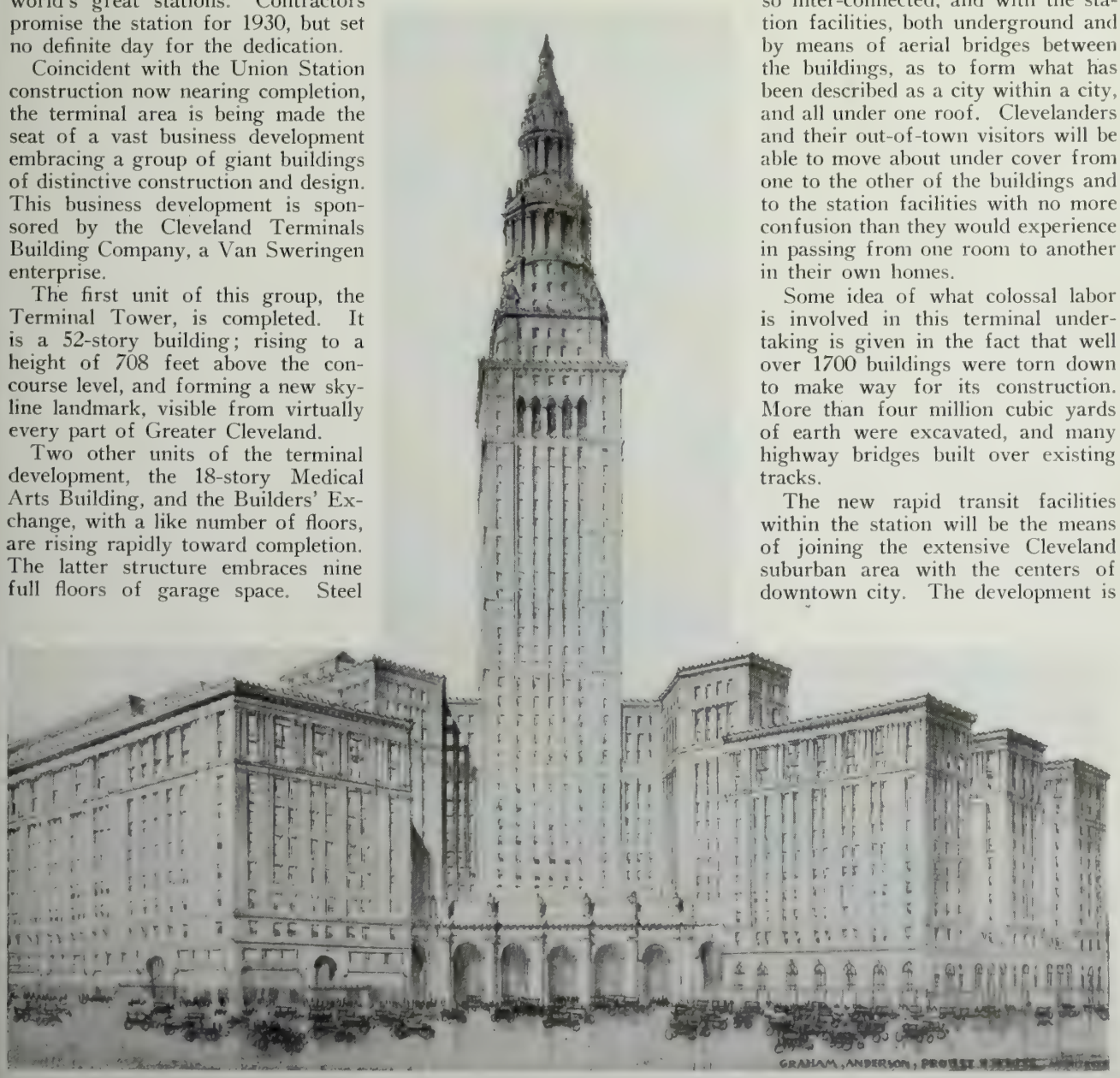
Two other units of the terminal development, the 18-story Medical Arts Building, and the Builders' Exchange, with a like number of floors, are rising rapidly toward completion. The latter structure embraces nine full floors of garage space. Steel work on these structures has been completed.

In addition to the units mentioned, plans for the terminal area include a great department store and then an addition to the Hotel Cleveland, of 700-room capacity. Other ultra-modern construction will be added as the need presents. The terminal building units, in the main, will front upon the Public Square and on two highways, each of a hundred-foot width, that have been built across the terminal area. These provide convenient thoroughfares for automotive traffic by-passing the Public Square.

The structures mentioned will be so inter-connected, and with the station facilities, both underground and by means of aerial bridges between the buildings, as to form what has been described as a city within a city, and all under one roof. Clevelanders and their out-of-town visitors will be able to move about under cover from one to the other of the buildings and to the station facilities with no more confusion than they would experience in passing from one room to another in their own homes.

Some idea of what colossal labor is involved in this terminal undertaking is given in the fact that well over 1700 buildings were torn down to make way for its construction. More than four million cubic yards of earth were excavated, and many highway bridges built over existing tracks.

The new rapid transit facilities within the station will be the means of joining the extensive Cleveland suburban area with the centers of downtown city. The development is



The Super-Terminal Union Station Cleveland Is Soon to Have Ready for Occupancy. The Central Tower, a 52-Story Structure, Is Completed. Its Height Is 708 Feet.

symbolic, throughout, of the vast industrial strides which have placed Cleveland among foremost American cities. Cleveland, for quite a long time, has been experiencing much the sort of a turnover under way in many of the most populous centers of the country. Industries innumerable have moved in. Population has been shifting into the suburbs. There comes a pressing need for better rapid transit bringing the outlying home districts nearer to downtown Cleveland in a trip, say, of from 15 to 25 minutes.

Site for the Cleveland project embraces 35 acres adjoining the Public Square, the heart of the city. Trains will operate into the station below street level; entering from the east and west sides of Cleveland over electrified terminal approaches, extending through the city for a distance of over four miles. A viaduct, two-thirds of a mile long, carries the westerly approach tracks over the Cuyahoga River and its valley. The New York Central, Big Four, and the Nickel Plate are the guarantor roads to use the station. Other railroads are expected eventually to operate into the terminal. This will be equipped, in the beginning, with over 450,000 square feet of platforms and about 42 miles of track. There will be, at the outset, 13 tracks and six platforms for the railroads and six tracks and seven platforms for commuter and rapid transit service. Ample space is reserved for expansion.

The C & O Ohio River Bridge Opened

The new Chesapeake & Ohio bridge over the Ohio River between Cincinnati and Covington, Ky., was opened for traffic Wednesday, Apl. 3, according to the program authorized by W. J. Harahan, president. This is the beginning of the final step in an extensive improvement project in the Cincinnati-Covington area on which work has been in progress for the past year and three-quarters, representing an outlay of $12,000,000.

In addition to the erection of this bridge to replace a structure built 40 years ago, the work already done consists largely of grade separation at Covington, and the building of additional tracks through that city.

Replacement of the old river bridge proceeded according to a rather unusual plan. The new structure is immediately downstream from the old, with one pier built as an extension of one of the old piers, and the others independent only because of a difference in the span lengths. The old structure will be retained in service as a highway bridge.

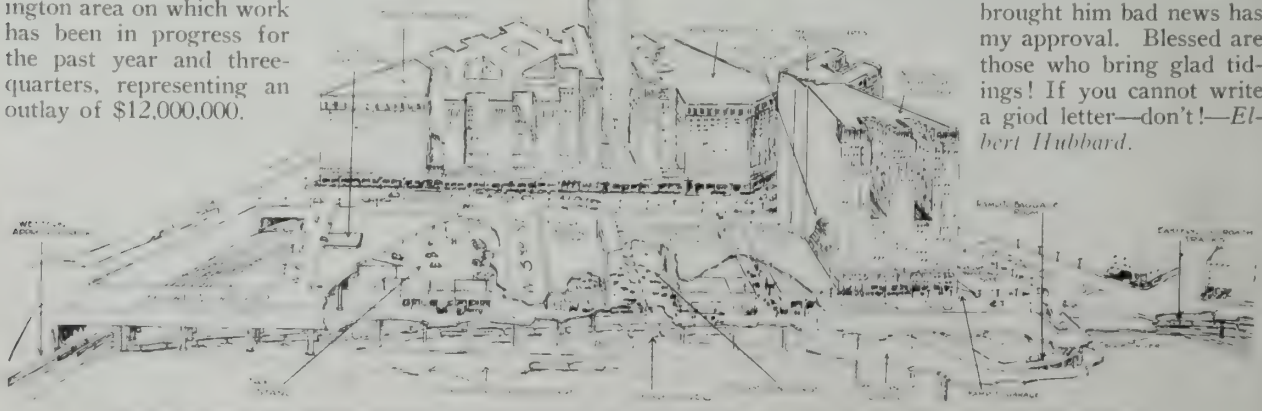
With a total length of 1575 feet, the new bridge consists of three spans, a river span of 675 feet and two shore spans of 450 feet each. The superstructure consists of through trusses continuous over the three spans and provides a roadway for two tracks. Track level on the new bridge is approximately three feet higher than on the old bridge, to avoid a reduction in the established waterway head room as the result of the use of a thicker floor. The two new river piers were sunk under air to rock 160 feet from base of rail, while the two shore piers are built on concrete piles.

Grade separation through the business part of Covington was accomplished by placing the new south approach to the bridge on a 0.3 per cent grade extending from the river, to replace the 1 per cent grade of the former approach. This had the effect of extending the approach grade from Sixth street to Fifteenth street, and introducing sufficient elevation of the tracks to permit the streets to cross under the tracks as far south as Eighth street. At Robbins, Eleventh and Twelfth streets the separation of grades was possible by building a new viaduct at Twelfth street and by replacing the old viaducts at Robbins street and Eleventh street with new structures at higher elevations. Included in these grade separation projects were plans also for an increase in the number of main tracks between K C Junction and Sixth street from two to four. The tracks at the passenger station, Pike street, were elevated about 16 feet, and three covered platforms, each about 900 feet long, were constructed, one being on each side of the four tracks and one in the center, so that all tracks are served by platforms. The platforms are reached by subway and steps from the passenger station.

Work is still in progress on the viaduct approach on the Ohio side. A long approach is necessary because the terminal tracks are approximately 50 feet below those on the bridge. The approach has three arms and embraces a total of 6,200 feet of steel viaduct.

These improvements are being made to facilitate the handling of business through the passenger and freight terminals at Cincinnati. They represent one of the most important construction programs ever undertaken by the Chesapeake & Ohio. The entire project was handled under the direction of C. W. Johns, chief engineer of the Chesapeake & Ohio, Richmond, Va., assisted by C. Miller, bridge engineer, Richmond, Va., and G. G. Lancaster, assistant engineer, Covington, Ky. The J. E. Greiner Co. of Baltimore were consulting engineers in the design and construction of the new bridge over the Ohio River. Portions of the work were awarded to a number of different firms, while the company's own forces have taken an important part in the construction.

That plan of the king in olden times who killed the messenger who brought him bad news has my approval. Blessed are those who bring glad tidings! If you cannot write a giod letter—don't!—*Elbert Hubbard.*



This Shows the Underground Arrangements of the Great Terminal Now Building at Cleveland.

And They Thought She Was A Man

Thirty Years a Railroad Woman

By M. C. Moore

FOR THIRTY years "K. E. Wilson" has been handling all kinds of technical matters as assistant to the vice president and general manager of the Illinois Terminal Company, and recently, in consummating the sale of that road to the Illinois Power & Light Corpn. Not long ago K. E. Wilson retired, and about the same time the people of Alton, Ill., heard talk of an interior decorating business to be established by Katherine E. Wilson. And then the story came out. Of course the people of that section were not astonished; they knew Katherine. But there must have been many surprised men in the supply industry.

When newspaper writers and readers see a person referred to as a "little woman," the expression is taken to be a term of sentiment. In this instance, however, the woman really is little. Indeed she weighs only about 90 pounds, but in this small package the Illinois Terminal Company had much energy and executive ability. Business associates give Miss Wilson much credit for the growth of that property from a six-mile line to one now listing about 450 miles of track, from an outfit worth about half a million dollars to another having a valuation which it is just as well to leave untouched while the Interstate Commerce Commission is still working on such questions, and courts are worried sick over their settlement.

Miss Wilson started with the Illinois Terminal Railroad as a stenographer. H. H. Ferguson, vice president of the road, gave her her first position. He found her an adept student and soon extended her authority. In fact, the unusual executive ability she possesses was quickly noticed and within an unusually short time she became chief clerk. Close on this appointment came the next step, that of car accountant, and at that time she was the only woman car accountant on a railroad in the United States, no small position with a line that served as a connecting link between manufacturers and the larger roads as well as a link between great national trunk lines.

All through her career Miss Wilson has had the faculty of doing just the right thing at the right time, but once she said, "I can't." A railroad accident had caused the death of one of the valued enginemen of the road. Mr. Ferguson detailed her to break the news to the family.

"Why I can't do that," she replied.

"Well," he responded, "if you can't do that, I don't believe you will ever be a great deal of help to me."

The rebuke was more in the nature of a boost, and since then her tasks have always been met and handled as they came along.

Katherine E. Wilson, Assistant to Vice President Illinois Terminal Co.

Katherine Wilson examined her own men on the book of rules. As they sat before her she sized them up. Some of the questions contained two or three sub-questions. As these burly trainmen sat there before her she made pencil notes of their answers. "If the man I was examining failed to answer any part of the questions I put to him," she said, recently, "or if he overlooked one of the sub-questions, I figured that he might be as careless with a train order, and I judged him accordingly."

This 90-pound auburn-haired woman gave herself completely to her job. Her apartment was in the same building as the offices of the railroad company and for weeks at a time she did not set foot outside of the building. A dispatcher's wire was run into her room, and when the yards got jammed, when the trains were moved a little too slowly, the dispatcher would call her. Whether the hour was two or five a.m. she immediately took the situation in hand and the morning found the little line had delivered its load to connections and the service was up to par.

During federal control her health broke and for a while she was confined to a hospital. Propped up in bed she issued orders, signed vouchers, dictated and kept a finger on the activities of the railroad. Her duties meanwhile had been widened in scope by the addition of the duties of federal treasurer for the Illinois Terminal Railroad Company and the Missouri & Illinois Bridge & Belt Railroad. Doubtless she was the only woman to have such a position. Her appointment as assistant to the vice president and general manager came after the World War.

She has enjoyed living this dual life with the outside world knowing her as a man. "I knew that I had a

The New York Central's New Oil-Electric Passenger Engine In Its Trial Run, March 19.

man's work to do," she said, "and I did not expect sympathy because I was a woman, so I purposely shunned publicity."

Following federal control Miss Wilson went to Asheville, N. C., for a rest of three months. While there she attended teas, rested and visited with other women guests. Although they would see her occasionally signing voluminous piles of mail, they were little aware of the nature of her work. So completely did she hide her business-world manners that when she was ready to depart she remarked casually that she guessed she would go back to work now.

"To work? What could you do?" inquired one of the women. And she laughed heartily when she told of the effect on the group when she told them that she was assistant to the vice president of a railroad company.

Miss Wilson gained the admiration of her organization through fairness in discipline. When one of her men wilfully disobeyed a rule, she refused him an interview, but if there was doubt as to the guilt, she fairly and with great concern discussed the situation, and through such methods she gained a reputation for doing the right thing. She denies that she has ever allowed sentiment to mix with her business, but she always has given an attentive ear to her employes in their personal difficulties.

A number of important things have happened during her regime when the full responsibility was placed upon her shoulders. During the outlaw strike of 1917 a call came to her that her men had walked out. She went down into the yards, commandeered an engine and rode to the scene of trouble, and when she returned her trains were moving again.

Although she has resigned her active duties with the road, Miss Wilson still retains an office and her apartment in the building and will act as advisor for the line whenever called upon. But for the future she is planning to live the life of Katherine E. Wilson. "I'm going to buy some new clothes," she said—isn't that just like a woman?—"perhaps I may build a home, get out in the fresh air and see what the world is like. There's some French history too that I started about 25 years ago. I'm going to take that up where I left off. It will be hard, getting resigned to the situation, but I believe my health will improve with the strain of my business cares lessened."

But her mind is too alert for her to be satisfied with a complete retirement. It would be as difficult for one of her engine foremen to believe her when she says that she may take up interior decorating, as it is for the average layman to realize her unusual executive ability. A woman, like some men, learns much in 45 years, 30 of it on a railroad. Miss Wilson has never for a moment lost sight of the fact that she is a woman. Many a "Dear Sir" letter she answered in the years gone by, many a tangle she straightened out "man to man"—by mail. But now it's "Exit K. E. Wilson, assistant to the vice president and general manager; enter Katherine E. Wilson, interior decorator."

O, well, life is like that.

Oil-Electric for Passenger Service

What many railroad men regard as perhaps the start of a new epoch in railroad motive power was recorded March 19 when the New York Central sent its new Diesel oil-electric passenger locomotive No. 1500, the first to be built in the United States, on a trial run over the Putnam division from High Bridge to Brewster and return.

The new engine is 59 feet 4 inches long and in running order weighs 360,000 pounds. Its maximum tractive effort at 25 per cent coefficient is 45,000 pounds. Its eight driving wheels are driven by electricity, which is supplied in the cab by a generator directly connected to a twelve-cylinder V type oil engine, which has cylinders 14 inches in diameter with a stroke of 18 inches. This engine is rated at 900 horsepower. A 600-volt traction motor is mounted on each driving axle.

Another King Canute

Starting out for a Sunday ride with three friends in his automobile, I. D. Kessler of Goshen, N. Y., tried to drive over a crossing ahead of a Lehigh & New England R. R. After the dust and pieces had settled, Kessler, with a tire draped round his neck, scrambled out of the wreck and limped painfully over to the engineman, who had run back from the halted train.

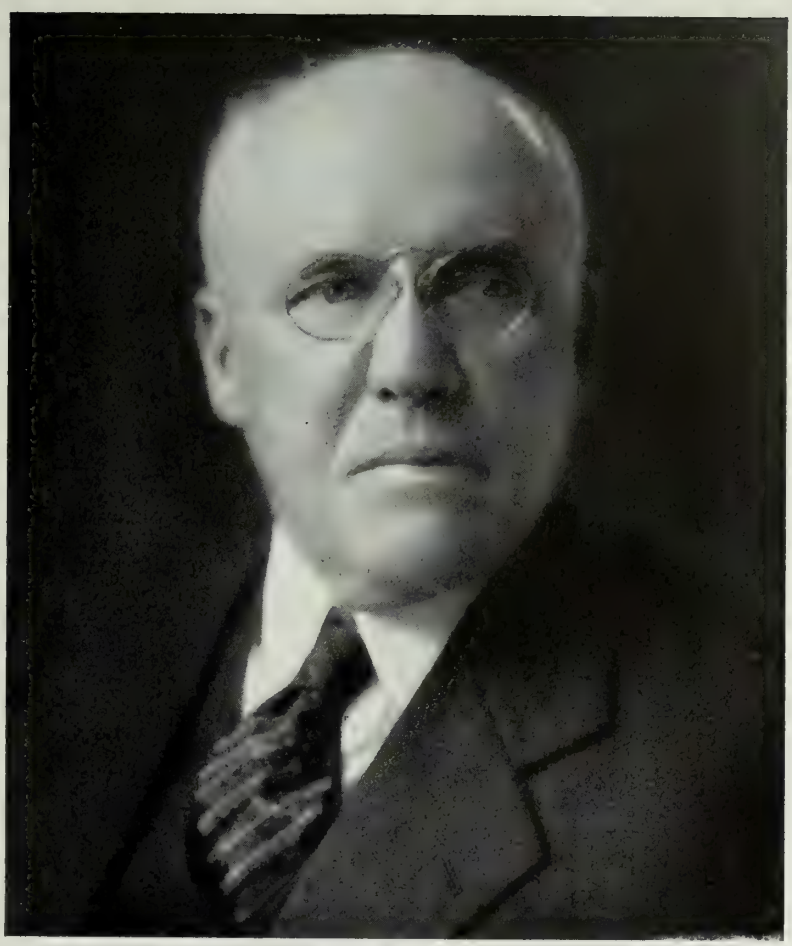
"I waved my hand to you, plainly showing I intended to cross over first," he shouted angrily. "I'll have the law on you for this!"

"Guess you never heard of King Canute," said the engineman. "The king thought he could make the sea roll back with a wave of his hand and when he quit trying it his loyal subjects had to roll him on a barrel."

Now An Airport Hotel

A 37-room hotel believed to be the first of its kind, will be constructed at the Oakland Airport soon to accommodate air passengers. The hotel will be owned by the city, as is the airport. The hostelry will cost about $40,000 and will be 110 by 80 feet and two stories high. Work will start on it as soon as the park commission approves plans now being drawn.

Little Stories About Big Men



—Blank & Stoller.

Agnew T. Dice,
President, Philadelphia & Reading.

IN THE office of the superintendent in the Philadelphia & Reading station at Reading, Pa., is an old book, its cover torn with much handling, in which are entered the names of many employes who have worked there in years gone by, and of those who still are on the job. Until a few years ago an aged clerk, his spectacles far down on his long, thin nose, was the proud custodian of this volume.

At the top of one page in this interesting record of railroad lives is an entry in ink now faded, a man's name: A. T. Dice, and under it several lines in the crisp style characteristic of railroad clerks innocent of any attempt at romance, even if any such thought ever entered their minds. Under the name the lines read:

Superintendent, Shamokin division, Feb. 1, 1897.
General superintendent, May 1, 1903.
General manager, Jan. 1, 1910.
Vice president and general manager, Jan. 1, 1913.

One day, twelve years ago, just after the board of directors had met in solemn conclave, an announcement was issued. Thereupon the aged clerk, smiling, took down the ragged book. "I been expecting to make this entry," he said. And then, in careful chirography, he wrote a few words, and sitting back, held the volume up for inspection. "There," he said, happily, "I guess that'll hold them for a while." This was the line he had written:

Appointed president, March 15, 1916.

The old clerk's feelings represented pretty thoroughly the attitude of the citizenry of Reading when Mr. Dice was promoted. The present head of the great coal line has lived in the town since 1897, and in the passing years has formed many friendships with men who know him too well to make a fuss over him. Not that they don't wish to, but rather because Dice, they know, is an unassuming man not looking for adulation or special favor. About the old station the employes say you can set your watch by his arrival at the office, but you will have to be up early to do it. Ask anyone in Reading about Dice and you'll be told he is a good railroad man. The loyal employes say the same thing, but they put an adjective in front of the railroad. No one calls him "Boss," "Chief," or "the Old Man." He is known as "Mr. Agnew."

Before his elevation to the presidency, Mr. Dice lived in a plain house owned by the railroad company, paying a moderate rental for its use. His home today is a bit more pretentious. But not its occupant. President Dice is modest and courteous, but scarcely genial or bluff. He is not the smiling, rough and ready, good natured type. But he certainly is dependable.

Agnew Dice was born November 2, 1862, at Scotland, Franklin County, Pa., and there he attended the traditional little red schoolhouse. He quit school at an early age, as many a boy has had to do, to earn his living, and when still a youngster became a rodman for a civil engineer. When he was

20 years old he got a job with the Pennsylvania Railroad, in the days when a youth could become an engineer without formal academic training. Because of somewhat remarkable mechanical and mathematical ability Dice had little difficulty in attaining a high rank in that profession. As a rodman he traveled rough roads with gangs of laborers, many of them of foreign birth, and he not only learned engineering in a "practical" way, but he studied human nature, too, a course that proved in later years to have been a most valuable one.

Mr. Dice was sent by the Pennsylvania Railroad to Altoona in 1887 to perfect a new signal system. He accomplished that task in a manner that attracted the attention of his superiors, and made his ability recognized in general railroad circles. In 1892, it was New Year's Day, the New York Central made him superintendent of signals. He went with the Philadelphia & Reading in 1897 as superintendent of the Shamokin division, as recorded faithfully in the ragged old book described in the beginning of this Little Story and now, according to Reading men of all degrees, he knows every spike in the line. They say his intimate knowledge of the physical condition of the entire Reading system is remarkable. Men in the general offices say his capacity for work is the most noticeable trait in the man's make-up. Employes who were at the Reading station offices before he arrived, and still are there, say they never saw him lose his temper. But the finest things are said, perhaps, by the engineers, conductors and other trainmen. They all know him. A popular engineer and a leader in brotherhood affairs said not long ago:

"You never heard of any bad strikes or labor troubles on the Reading, at least in recent years, did you? The reason for all this is Mr. Dice and his fair treatment. You can't slip anything over on him. To attempt to mislead him regarding anything about the road means trouble for the guilty one. We have all come to say on occasions when we think things need talking over and an adjustment reached, 'take it up with Mr. Dice, he'll give us a square deal.' "

The Reading employes like to tell how Mr. Dice figured out the great coal distributing system at Mahoney Plane, in the anthracite district of Pennsylvania. It is there that the coal cars are lifted to the top of Broad Mountain and go to a big yard for train shipment to the seaboard. The men say Mr. Dice figured out the system at that point and that he evolved the scheme of weighing and distributing by gravitation on the myriad of tracks. During the days when his plans were being worked out, they say, Mr. Dice was seen on the tracks as early as 6 o'clock in the morning and he was there until late into the night. The men didn't work for him, they say, but with him.

Agnew T. Dice made his own career, but you will never hear him boast about it. Comb the country and you will not discover a man who deserved what he achieved more than he. It is true that from rodman to president is quite a jump.

"Must have had inside pull," one cynical brakeman said when he heard about Mr. Dice's election to the presidency. But he was wrong. Outside push is what landed him in his present place. The only steady advocate he had at court was old General Ability—the same chap who has pleaded the cause of other successful men who started in the cellar and kept on traveling until they owned the floors above.

"Every man, in Dice's opinion," said an employe, "must make his own way, 'lean on his own crutch' and be sure he has one, too. Did you hear about his son? When Dice, junior, left Princeton he wished to become a railroader like his dad, but the father didn't want him on the Reading. He didn't wish to handicap his son by denying any promotion that he deserved, nor on the other hand did he care to have it said that, through family favoritism, he pushed his own boy ahead of others. That shows you how square the Reading's president is. And it wasn't any theatrical pose, because posing is a thing which A. T. Dice never learned to do."

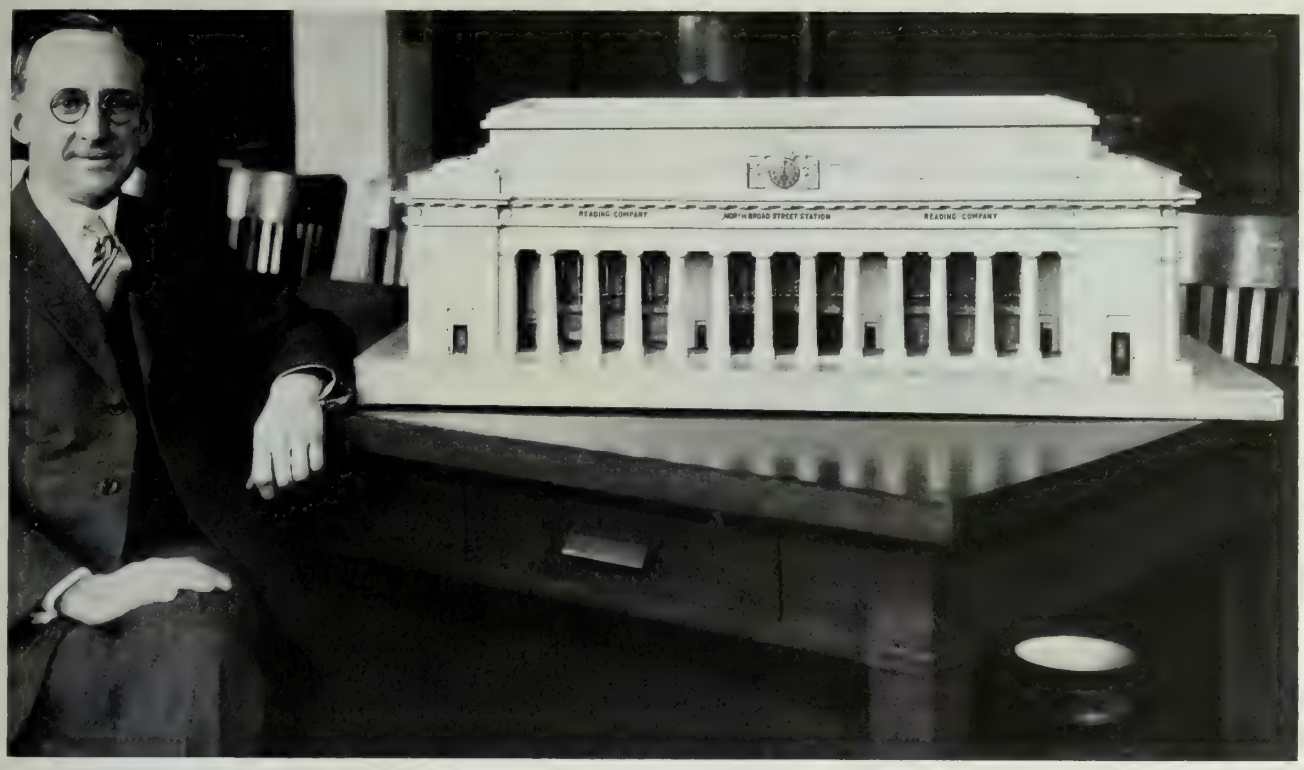
If there is any one fact more than another that has earned for Mr. Dice the respect of the railroad employes, it is because he is a practical man. He is not only a financier. He knows the parts of a locomotive; he understands how steel tracks are made, and he is an expert in signaling. He is none the less capable, however, as an administrative factor because of the railroad's technical side.

One feature of Mr. Dice's career is especially interesting. It is the fact that almost all of his early comrades in the railroad business have attained unusual success. Although they are less prominent than he, they too have risen above the ranks, and several of them are still rising.

The Reading has had three presidential regimes in sixty years. Franklin Benjamin Gowen was a Colossus. Orator, splendid lawyer, destroyer of the Mollie Maguires and purchaser of the Reading's vast anthracite lands, after a dozen years he was defeated for re-election as president of the company, only to be chosen again for the post shortly afterward. It was Gowen's ability to see a generation ahead that made it possible for the Reading to become what it did under Baer, the king of the hard coal railroads.

A. A. McLeod was the Reading's meteor. He dreamed that railroad empire which was to include the Baltimore & Ohio, the Lehigh Valley, the Jersey Central, Reading, Poughkeepsie Bridge and the New England lines. McLeod was not very considerate about whose toes he trod upon.

George F. Baer was the man who made the Reading cease to be



This Is An Accurate Model of the North Broad Street Station of the Reading Company At Philadelphia, Made by An Accountant.

a railroad joke. While fond of a jest himself, and a capital humorist, Mr. Baer couldn't see the fun of a company forever remaining in bankruptcy. Being merely a lawyer and not a railroad man, he took the Reading by the hand and led it from the foot to very close to the head of the railroad banquet table. Mr. Dice was one of the active young men who assisted in that praiseworthy transfer. Taking, first, Reading Railway stock and now the stock of the Reading Company which owns the railway, for a period of nearly 50 years it has been the largest single factor in American stock exchange operations. During that period more shares of Reading have been bought and sold than of any other railroad corporation in the United States, unless, perhaps, we except the Erie. And this, as Kipling would say, is entirely another story.

North Broad Street Model

A model of the North Broad Street Station of the Reading Company, Philadelphia, has been made by Arthur G. Remhilt, assistant general bookkeeper in the accounting department of that road. The miniature was started by Mr. Remhilt November 19 and completed December 17, consuming 103 hours of the builder's spare evenings. It is patterned in exact accord with the engineer's plans and measurements and made to the scale of 3-16 of an inch to a foot.

Mr. Remhilt entered the service of the Reading in November, 1900, in a clerical capacity in the office of the auditor of freight traffic, where he remained until he was transferred to the comptroller's office in December, 1918.

The model was displayed for the first time at the second annual banquet of the R. R. B. Club of the accounting department, on December 20, 1928, after which it was exhibited in the main waiting room of the Reading Terminal, sharing with the magnificent Christmas decorations the attention and admiration of thousands of Reading patrons.

Getting On In the World

Several hundred letters have been received in the last few months about the biographical sketches appearing in this department. They give a fine cross-sectional view of the minds of the men, young and old, in supervisory and executive authority today on American and Canadian railroads. But more than anything else they show, most convincingly, that railroad men in the supervisory ranks, and some who have become division superintendents, are sincerely concerned over their chances for advancement.

Some of these letter writers are timid, some have been in their present places so long that chances for further advancement seem about blank; a few are growing discontented; one in 600 is distinctly cynical about the theory that his superior officers are appreciative; all are ambitious, eager to get ahead; and a very few believe, quite frankly, that they have no chance at all for ever becoming general manager, vice president or president of the road. "There are nearly two million railroad employes," says one writer, as if he feared he might never be seen in such a large crowd. "What possible chance have I ever to get up? How can I ever be successful against such odds?"

At first glance this man's state

of mind is perfectly logical. He is much more valuable than a man who has no such thoughts. The question he asks is fair, and it ought to be answered. However, as Solomon is no longer on the job we turn to the first railroad president in mind to whom the same query was put about a year ago, Daniel Willard of the Baltimore & Ohio.

"It seems to me," said an old acquaintance, "that there are few more pathetic spectacles than that presented by a man of real ability, energy and ambition, who has entered a calling with the purpose of making his way to the top, and finds himself marooned in some inconspicuous place, with no chance of attracting the attention of those in authority, no opportunity to manifest his talents however superior they may be."

"That is true," said Mr. Willard. "It is a pathetic spectacle, and it would be idle to deny that it does exist. We have 80,000 men employed on the B. & O. and they can't all be president or general manager. Possibly three or four now working in some inconspicuous posts will get to the very top in time. But most of them will necessarily fill positions less conspicuous, but none the less necessary and important in our scheme of things.

"And yet none of them can tell when the lightning of promotion may strike him. I don't believe in luck, but I can see that what brings success in life is ability plus the opportunity to manifest it at some critical moment. A man who was later general manager of an important western railroad was station agent at an obscure point a few years ago, when a wreck occurred on his section. Instead of merely notifying headquarters and waiting for the relief train to arrive, he went himself to the scene of the wreck.

"He organized the trainmen and the bystanders, and as rapidly as possible got the injured to places of safety, and secured aid for them. Then he made himself a claim agent and, acting upon his own responsibility went among those who might have brought vexatious suits against the road, settled their claims with money taken from his station cash drawer, and secured quit-claims. When the relief train arrived practically all the work had been done.

"A man never can tell when opportunity is going to present itself, nor can he often tell when threatened disaster may in fact contain the very opportunity he seeks. When I was driving a locomotive years ago, the road I served changed ownership and managers. All the way down the line men were dropped or shifted to less desirable jobs.

"I got it into my head that I was slated for discharge, and was very miserable about it. You know, most of our suffering comes from things we fear and that in fact never happen. I was perfectly certain that I had to go, and I think I suffered more in apprehension than I would from half-a-dozen actual discharges. At last one day at the end of my run I found in my pigeonhole an official envelope. I was sure the blow had fallen.

"For a long time I hesitated to open it, and when I did it turned out to be a notice of my appointment as trainmaster. Promotion instead of discharge! That did a good deal to prevent my borrowing trouble thereafter."

"But," says another letter writer, "President So-and So had influence back of him."

There is no sense to this idea. The personal history of our executives proves it. What, for instance, was Mr. Willard's origin? Here is the story in his own words:

"I was born and lived on a New England farm until I was 18 years old. My father owned his farm of about 250 acres of woodland hills, pastures and meadow lands. He kept, when I was a boy, five or six cows, a yoke of oxen, ten or a dozen head of young cattle, including calves, two or three horses and sometimes 200 sheep, and, of course, hens, turkeys, guinea fowl, pigs, etc. As I was the only boy in our family, you can perhaps imagine how busy I could be. It was my job to feed and water the horses and clean out the stables; then I had to help feed the cows and cattle, and try to persuade one or more calves to drink milk from a pail. The hogs also had to be fed. Then there was one other job that was wholly mine, filling the wood box in the kitchen. It sometimes seemed to me that it had no bottom.

"In springtime I had to ride horse to cultivate corn and potatoes, and help make the garden. In haying-time I had to turn the grindstone while the mowing machine cutter was being ground and also had to rake after the cart when the hay was being loaded. We had no hay forks and so I had to mow away up under the roof in the barn. The meanest job on the farm, so I thought, was picking up potatoes, but I liked to husk corn. There were many other jobs supposed to be a boy's size, such as going after the cows up in the pasture, washing the buggy, sticking pumpkin seeds, pulling weeds in the garden, etc., etc.

"I had to turn the churn, and we had one cow that I despised: it seemed as if her cream never would turn into butter, and it also seemed as if it was always time to churn when the weather was just right for fishing or sliding down hill. Churning was an all-the-year-round job."

You get just one conclusion out of all this, and that is hard work, early and late. Daniel Willard started right at the bottom. In his formative years he went through the whole gamut of experience, hostler, fireman, engineer, and so on upward. You can't deny that there really was influence here—the influence of work well done, and when a man has this influence it can't be hidden.

What About the Newark Accident?

Safety First the Preventive

By Charles Dillon

THE WORST aviation tragedy in American history as regards the loss of life occurred last month at Newark, N. J., when a Ford cabin ship crashed into a box car, and 13 persons were killed. Federal authorities immediately began an investigation and in due time a formal report can be expected to be issued placing the blame, if any, for the crash.

In the meantime the entire aviation industry has suffered because of the adverse publicity resulting from the accident. Unfortunately it is true that newspapers pay more attention to airplane accidents than they do to mishaps to railroad trains, steamers or automobiles; it is likewise true that every airplane crash tends to retard the growth of air transportation. On the other hand, it is gratifying to know that despite undue adverse publicity air travel throughout the United States is increasing.

Judging by newspaper reports the Newark tragedy was due primarily to the overloading of the airplane. There were three Wright Whirlwind motors, each developing 225 horsepower. They were capable of carrying the ship safely if conditions were normally favorable. The Wright motors are excellent machines. In this instance it appears from newspaper reports that one of the motors faltered, and the two remaining were not capable of sustaining flight. There is the possibility, also, that the pilot misjudged distances in attempting to glide to the ground, but the newspaper reports do not show that such was the case.

On the day previous to the accident the same airplane had been in trouble while making a flight over New York City. On the following day a different pilot was assigned to the task of taking the ship up. Several flights of short duration were made successfully. Then came the accident, and of the 14 persons riding the big plane only the pilot survives.

The concensus among aviation experts appears to be that the three Whirlwind motors, excellent as they are, lack sufficient power to fly an airplane as large as this Ford ship with 14 passengers. The 675 horsepower they develop fails to give sufficient reserve to assure the desired margin of safety. On a smaller ship these motors could give splendid service. But it will be agreed that the giant air liners using three or more motors should have sufficient reserve motive power so that the failure of one, or even two motors, should not lead to tragedy. There are trimotored passenger airplanes that will sustain flight, fully loaded, with any one of the three motors operating. All multimotored passenger planes should do the same. There will, then, be afforded the margin of reliability that will redound to the benefit of the air transport industry.

Such tragedies as that at Newark do much harm to the aviation industry. It is the inherent trait of human beings to want to keep one foot on the ground. Only during the last few years has air passenger transport begun to find popular favor. Thousands of persons now have been up in an airplane; there are thousands who have not been up, and many of these declare solemnly they never will go up. These are the persons prone to point to every report of an aviation accident and say: "I told you so. The ground for me."

Within 24 hours after the fatal airplane crash occurred at Newark two passenger trains came together head-on in Canada. Fifty per cent more persons were killed in that railroad wreck than perished in the airplane crash, but it is safe to say no one contemplating a railroad journey cancelled his trip because of the rail catastrophe. On the other hand, it is probable that thousands of persons read of the airplane accident and decided never to get both feet off the ground at one time.

Every day we have fatal automobile accidents. The Monday morning newspapers regularly schedule a story covering week-end automobile crashes—so many dead and so many injured. But just as regularly the family will load into the old bus on Saturday afternoon or Sunday and start merrily forth. The continued stories of automobile accidents have not halted motor car travel in the slightest bit nor interfered with automobile sales.

The Western Air Express, a transport company operating five air lines and soon to start a sixth, reported recently that its planes in regular commercial service had traveled 2,500,000 miles without an accident. An on-time schedule of 99 per cent perfection had been maintained. That is a record that even a railroad would be glad to have. Over all the nation airplanes in commercial service operating over regular routes have averaged approximately one fatality to 1,400,000 miles. It is a good record when consideration is given to the newness of air transport.

Most of the air transport companies started operations with airplanes that were not entirely satisfactory, but they were the best that could be had. Now better, more trustworthy, airplanes are being turned out.

Most of the air lines were established before adequate airport facilities were available. Lack of proper airports has been the cause of many accidents. During 1929 a total of more than $300,000,000 will be spent in this nation for new airplane landing fields and this means added safety for air travel.

Practically all air transport companies started operations without accurate weather data, without meteorological service, without radio and without beacons for night flying. But now with the aid of the federal government and private enterprise these defects are being remedied.

Air transportation is coming into its own, slowly, but surely. It is not challenging the service of any other known means of transport, but it will supplement these other systems. All of them will be needed in the rapid

In the Travelair Factory At Wichita, Kan. The Missouri Pacific Ry. Has Adopted This Plane for Coordinated Service According to Recent Reports.

commercial development of this big country of ours.

As all of us know, aviation is still a novelty about which much is to be learned. It is unprogressive and unfair to talk against it, and it is useless because aviation can not be denied its part in the march of progress.

In the early days of railroads abroad and in this country, men whose education and standing in science and industry, as well as those whom we now call lowbrows, talked against the idea of any human being risking his life on a train traveling at the "incredible" speed of 12 miles an hour. Authentic history records pages of such talk. But railroad builders went right ahead building, and the world's most sagacious financiers were glad to supply the money needed.

In the beginning there were, as might have been expected, many frightful disasters. Magazines and newspapers of the 60s and 70s seemed to delight in giving the most dreadful descriptions. Busy legislators, whom we have with us always, sat up nights devising laws to prevent the slaughter, when all that was needed was education and the inventive brains of men to perfect machinery. A bad railroad wreck today is a rare occurrence. Safety First is preached everywhere. It was many years after their beginning before railroads began to have anything approaching the scientific completeness of safety precautions and governmental regulation under which aviation now is carried on in America. In a report issued a few weeks ago by Major C. M. Young, director, aeronautics branch, department of commerce, the government's part in preventing accidents is described. Major Young says an accident board has been created within his organization to investigate all civil aircraft accidents with the view to determining and eliminating their causes. This board is composed of two experienced pilots, a flight surgeon, a lawyer versed in air law and an aeronautical engineer. A careful analysis of accidents is made and a percentage valuation assigned to contributory causes. This method, it is declared, will provide statistics to show the exact causes of accidents and point the way to their elimination. It will also provide a valuable index to those portions of the air commerce regulations regarding both personnel and material that may be unnecessarily severe, or where higher safety standards are requisite and more exacting and specific regulations must be imposed.

If you don't like airplanes as a means of travel, there are just one or two suggestions worth your careful thought: The leading railroads are adopting them for long journeys. This is enough to recommend them.

Secondly, as your pastor says, if you don't like aviation keep still about it until you know something worth saying. As in the case of prohibition, every time you knock it you hurt your social standing.

In This Dirigible Miles of Rope

The R-100, England's latest contribution to lighter-than-air navigation, is expected to visit America this month—April. An idea of its great size may be had by comparing it with the Graf Zeppelin, the German craft which only recently made a successful transatlantic trip as her demonstration cruise. Although the Graf Zeppelin was 776 feet in length, and the R-100 only 709 feet long, the latter's gas capacity is 5,000,000 cubic feet as against the Graf's 3,750,000 cubic feet. This large increase in gas capacity comes about through the difference in diameter, the Graf Zeppelin being only 100 feet in diameter as against the R-100's 133 feet. Naturally, the larger the gas capacity the greater the possible load, so that in contrast with the Graf's limit of 20 passengers, with a crew of 30, the R-100 can carry 100 passengers together with a crew of 40, and yet have space for ten tons of freight or mail. Within its hull are dining rooms, lounges, smoking rooms, cabins and a promenade deck which rival in spaciousness and appointments those on our great ocean liners. The R-100 is powered by six Rolls-Royce Condor 700 h.p. motors, has a cruising radius of between 4,000 and 5,000 miles and a speed of 80 miles an hour. This is by far the largest amount of power and speed ever applied to an airship.

Of particular interest to the engineering fraternity is the unique method for bracing the enormous body of the new R-100. This is accomplished by means of preformed wire rope of varying sizes and lengths, stretched from point to point within the hull, and held by means of the compact processed fittings. As in automobile brake assemblies and other unusual wire rope application, these preformed wire ropes and processed fittings were found to pos-

Photo by S. M. Stonehart

Administration Building, Mess Hall and Offices of the Hancock Foundation College of Aeronautics at Santa Maria. The Central Building Is the Dormitory and Class Room, with Accommodations for 40. Mess Hall at Left.

sess entirely adequate strength with greatly minimized weight and vastly increased flexibility over the rods previously used. According to Brunton's of Scotland (licensees of the American Cable Company, New York), who supplied this equipment, more than 9000 processed "Tru-Loc" fittings and over 22 miles of preformed "Tru-Lay" wire rope are used in the hull of the R-100.

Captain Hancock Endows Air College

By Ralph P. Dillon

An endowed college of aeronautics, the first non-profit school in this country and perhaps in the world for teaching this subject, has been founded at Santa Maria, Cal., by Capt. G. Allan Hancock. A flying field and all necessary equipment, as fine as anything anywhere, also has been provided by the captain.

For most mortals, the achievement of having made a branch line railroad pay real money would be almost enough for one lifetime. But that has not been the case with Captain Hancock, whose almost fabulous exploit with the Santa Maria Valley Railroad was told in these pages a few months ago. The captain, who has a way of doing things first, broke into front page headlines a year ago by providing the money for Captain Kingsford-Smith and his companions to fly the Southern Cross to Australia, thereby blazing a new trail across the pages of aviation history.

But facts, not adjectives, tell the story. Here are the facts: On the eastern edge of Santa Maria, or "Spotless Town," as it has been called, is an 80-acre landing field, opened with appropriate ceremonies last October by Santa Maria Airlines, Inc., of which Captain Hancock is president. Runways have been laid out, more than 2000 feet in all directions, oiled and rolled into a springy turf which eminent flyers, such as Col. Art Goebel and Emory Bronte have declared to be as fine as any they have ever used. Along the north side of the field are five hangars, of two and three-ship capacity, airplane, engine and administration buildings, mechanical and overhaul shop, restaurant and dormitory and class room building. Quite a layout, you say, for an institution not a year old. But wait! The Hancock Foundation College has not even opened yet. When the present dormitory accommodating 40 students is filled after classes start the last of this month, ground will be broken for a second dormitory. And as soon as that is filled, a third will be built, giving a total capacity of 120.

Flying equipment for the college includes 11 planes of various types, with more on the way. Latest among the additions to the fleet are a tri-motored Bach Air Yacht, for 12 persons, to be used as a finishing ship for transport pilots; an Avro-Avian, a tiny English ship of the type used by Lady Heath in her flight from London to Capetown, and a number of regulation army training ships.

Lieut. Ross McBride of Los Angeles heads the faculty of the air college, which numbers among its instructors some of the finest aviation minds obtainable. E. A. Underhill is chief flight instructor. He formerly was in charge of artillery spotting and aerial photography at Fort Sill. Under him will work such men as H. Barrington Bruce and "Pat" Fleming, a survivor of that immortal crew, the Lafayette Escadrille. J. B. Stone heads the mechanical division. Until recently he was in charge of all airplane repairs and maintenance at the naval base at San Diego.

Embryo Lindberghs will not find the college a place where a helmet and goggles make a pilot. Everything will be run on a semi-military basis. The age limit for entrance is 16 years, and those boys who rate "A" mentally and physically, will be considered military timber, according to officers from Crissey field who have discussed the college with Captain Hancock.

"Any flathead can learn to fly a ship," said Pat Fleming the other day, "but it takes a blooming angel to be a transport pilot."

When the class is turned out at the Hancock college, the members may well be numbered among the angels, because they won't graduate until they know aviation inside and out. For example, the first rule of the school is "20 hours of dual instruction for everybody," and that means everybody, good or bad.

Special emphasis will be laid on instrument flying, for it is a proved fact that many a good pilot has lost his life while trying to fly "blind." Every phase of the science will be taught, including aerial photography and acrobatics, or stunt flying, since both are of greatest importance to military operations.

An indication of the stir created by the school already is shown by the number of applications. A week after the newspapers released the story, more than 500 applications were received at the airport. In the meantime, an item has been appearing in the Santa Maria paper so often that it has almost lost its news value:

"Captain G. Allan Hancock flew up today from Los Angeles in his Lockheed. He piloted the ship him-

—P&A Photo.

Assembly Floor of the Boeing Airplane Co., At Seattle, Wash., One of the Largest Plants of the Kind in the United States.

self;"—for to his titles of financier, sea captain, musician, railroad operator and farmer, Hancock is now privileged to add "Limited Commercial Pilot, U. S. D. C."

Air Mail to Be Faster

Air mail time between New York and Los Angeles as well as San Francisco will be reduced by twelve hours or more with the inauguration during the next thirty days of an additional service between the two coasts on a schedule designed to eliminate the overnight layover of incoming mail at both terminals.

This service already is in operation from New York as far west as Lincoln, Neb. The new feature is its extension to California, made possible by the completion of the lighted airway in the sector between Salt Lake City and San Francisco. Coincident with the beginning of this service there also will go into operation service on a new route between Omaha and St. Louis via Kansas City.

The "night transcontinental," the designation of the new service, will operate on a schedule permitting the day's accumulation of mail to be picked up on either coast and delivered on the other the second morning. Mail deposited as late as 7 p.m. Monday in New York will be scheduled to arrive in Los Angeles or San Francisco at 4:30 or 5 a.m. Wednesday, in time for the first delivery. The same situation will apply to the eastbound mail.

The present or "day transcontinental" will not be abandoned as the result of the new service. It performs a valuable function between intermediate points. For instance, westbound mail from Cleveland and Chicago reaches Reno, Nev., in time for delivery the day after mailing. Similarly eastbound mail leaving Salt Lake City at 3 p.m. reaches Cleveland at 12 o'clock noon the following day.

The day transcontinental also will serve to take care of late operations from connecting lines and also will support the night transcontinental in the event of serious delays during abnormal weather conditions.

Mail from San Francisco and Los Angeles, leaving one night will be delivered the following day in cities as far east as Cedar Rapids, Iowa, and over a connecting route, in Kansas City. It will arrive in Chicago by 6 p.m. or in St. Louis by 4:30 p.m. for special delivery that evening.

Speak pleasantly, avoiding loudness or gruffness, intentional or otherwise. Unpleasantness of speech is frequently a matter of habit that can be corrected.

Avoid sharp retorts to inquiries or remarks of patrons regardless of occasion.

A man's job is more than a means of livelihood; it is his contribution to society, the thing that gives him a place in the world of men.—*Whiting Williams.*

There is but one straight road to success, and that is merit. The man who is successful is the man who is useful. Capacity never lacks opportunity. It can not remain undiscovered, because it is sought by too many anxious to use it.—*Cochran.*

There is nothing truly valuable which can be purchased without pains and labor.—*Addison.*

THE PENNSYLVANIA RAILROAD

SUMMARY OF ANNUAL REPORT FOR 1928

THE 82ND ANNUAL REPORT of The Pennsylvania Railroad Company, covering operations for the year 1928, will be formally presented to the stockholders at the annual meeting on April 9, 1929. The report shows that although the Company's total operating revenues in 1928 were over $14,000,000 less than in 1927, its net income was over $14,000,000 greater than in 1927. Last year was the fourth successive year in which the net income exceeded that of any previous year.

Net income for the year, amounting to $82,507,613, was equivalent to 14.69% upon the present capital stock outstanding, as compared with 13.65% upon the amount outstanding at the close of 1927.

OPERATING RESULTS

	1928	Comparison with 1927 Increase or Decrease	
TOTAL OPERATING REVENUES were	$650,567,316	D	$14,283,707
TOTAL OPERATING EXPENSES were	480,171,634	D	30,497,027
LEAVING NET REVENUE of	$170,395,682	I	$16,213,320
TAXES amounted to	37,846,357	I	2,136,608
EQUIPMENT, JOINT FACILITY RENTS, etc. amounted to	15,251,639	I	756,329
LEAVING NET RAILWAY OPERATING INCOME of	$117,297,686	I	$13,320,383
INCOME FROM INVESTMENTS AND OTHER SOURCES amounted to	44,535,653	I	1,298,662
MAKING GROSS INCOME of	$161,833,344	I	$14,619,045
RENTAL PAID LEASED LINES, INTEREST ON FUNDED DEBT AND OTHER CHARGES amounted to	79,325,731	I	271,728
LEAVING NET INCOME (Equal to 14.69% on Capital Stock) of	$ 82,507,613	I	$14,347,317

After providing for the payment of 7% dividends to the stockholders and for sinking and other reserve funds, $38,950,928 was credited to Profit and Loss Account.

* * *

The factors chiefly responsible for the Company's progress during the year and for its increasing financial success are: Large capital expenditures to improve and expand the railroad's plant and facilities; progressive improvement in operating efficiency and economy; cordial cooperative relations between the management and employes, and the continued patronage of the public whom it has been a pleasure to serve.

W. W. ATTERBURY,
President.

Philadelphia, Pa., April 1, 1929.

THE PENNSYLVANIA RAILROAD

Carries More Passengers, Hauls More Freight
Than Any Other Railroad in America

SHIP AND TRAVEL VIA PENNSYLVANIA

Stockholders may obtain copies of the Annual Report from Lewis Neilson, Secretary, Broad Street Station, Philadelphia, Pa.

Among the Men Who Do the Work

A DEVICE of unusual ingenuity, yet simplicity itself in its design and operation, is a screw sorting machine being successfully used at the Pacific Electric Railway's shops at Torrance. It was conceived and perfected by N. E. Fielder, tool maker, and demonstrates that Fielder uses his head for other things than a hat rack.

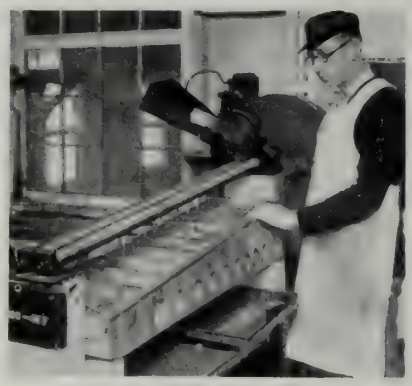
The very large number of the screws accumulated from the dismantling and repairing of electric cars and motor coach equipment, with the almost prohibitive cost of hand-sorting them as to sizes, suggested to Fielder the need of a device that would eliminate the work, and at the same time permit it to be done more quickly.

With two revolving threaded master screws, turned by a motor as the principal unit, the patentee proceeded to make them perform the work previously done by human hands. These revolving screws practically come together at one end and are gradually spread apart in order to provide the proper mesh through which screws of various sizes drop in their journey into a provided container bin below, this bin containing separate compartments into which the screws of various sizes are deposited.

To start the machine, the material is placed in a hopper which elevates itself into a feed position with the starting of the motor, a slot in drum in front of feed hopper releasing the desired amount of screws. These screws are deposited on the revolving master screws, the smaller units beginning to drop between the grooves and the larger being carried out toward the end of master screws, all of them dropping en route into the right compartment of the bin below.

In addition to separating as to sizes various types of screws, the machine may be adjusted so as to separate bolts, nails and rivets, or any such material whose sizes are governed by head measurements.

Patent rights have been applied for in behalf of Fielder.



A Screw-Sorting Machine.

Two Old Timers Retire

Top Early, for 55 years an engineman, and Ed Day, 42 years a conductor, both on the Northern Pacific, retired February 28. Both are 70 years old. Charter members of the old school of railroaders, these two veterans have a record of never having been late for duty or never injuring a passenger due to any fault which could be attributed to them. They began their railroading careers in the days of handbrakes, kerosene lamps and wood burners. Both, for many years, have worked on passenger trains.

No Accidents in 48 Years

Michael D. Hogan, 70, engineer on a Chicago & North Western flyer between Boone, Iowa, and Omaha, has climbed from his cab for the last time. After 48 years of continuous service, most of it at the throttle, Hogan has retired on pension. He never figured in a serious accident.

Conductor Ed Day and Engineer Top Early, Northern Pacific Veterans, Retired February 28.

She'll Learn A New Language Now

Senorita Pilar Careaga of Madrid, Spain's first woman railroad engineer, drove the Madrid express into Gijon February 13 on scheduled time.

The chief of the machine department and another engineer sat beside her. Senorita Careaga has just graduated from the engineers' school.

After 63 Years' Service

David F. Runkle, foreman in the Reading Company's car shop, St. Clair, after 63 years' service, was placed on the pension list on December 31, 1928. This record has seldom, if ever, been surpassed by an employe of this or any other railroad.

Due to his remarkable physical condition and his ability to serve, he was retained in the service four years over the allotted time for retiring employees.

He was born at Landingville, Schuylkill County, Pa., September 1, 1854, and began work as a water boy on the Schuylkill Navigation Company Canal May 1, 1865, under his father, Joshua Runkle, foreman, and continued in that capacity until July 12, 1870, when the Philadelphia & Reading Railroad Company obtained control of the Schuylkill Canal.

A Portable Jack For Heavy Work

By C. W. Geiger

The Southern Pacific has built a number of portable jacks which make it easy to handle the heavy side frames and bolster of railroad car trucks. The horse or frame is placed at the end of the car from which

SELF-PROPELLED COMPRESSOR and "STRAIGHT BACK" TIE TAMPERS

On The Job

MANY railroads are using these units because of their convenience, speed and reliability. The standard CP Compressor is mounted on a truck frame carrying flanged wheels with Timken roller bearings, transverse shifting wheels and winch, air-operated lifting jacks, lifting bale and a roomy tool box. The gasoline engine that operates the compressor also propels the car at a speed of 12 to 18 miles per hour, depending upon its size. The compressor is furnished in sizes of 110, 160, 220, 265 and 310 cu. ft. per minute displacement. The CP Tie Tampers have several interesting features that are fully described in folder No. 1646. Details of the Self-Propelled Compressors are given in Bulletin No 789.

Chicago Pneumatic Tool Company

Railroad Department

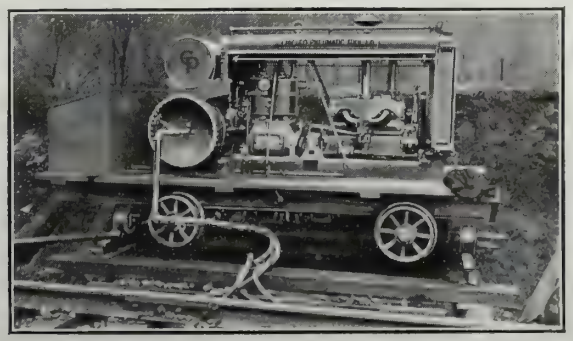
6 East 44th Street
New York

1004 Mutual Bldg.
Richmond, Va.

175 First Street
San Francisco

310 S. Michigan Ave.
Chicago

J-293



David F. Runkle

the truck is to be removed. The car end is raised and the truck run out from under the car and spotted directly under the horse. Then the side frames and bolster are raised clear of the wheels which are then moved away.

The portable jack is provided with a chain shown at "A" operated by hand wheel "B" and two chains shown at "C" and "C", each chain operated by a crank shown at "D". When it is desired to remove the wheels from the trucks the bolster and side frames are raised by the turning of the hand wheel "B" and the cranks "D". Chain A raises the bolster and the chains marked "C" raise the side frames, which are then being moved sideways clear of the journals of the wheels. These can then be rolled away to the machine shop for repairs.

Profitable Laziness

When the steam engine was first invented the valve had to be moved by hand. A boy named Billy Hodge sat on a stool beside the engine, first opening the valve, then closing it. Billy was lazy. After giving him a dozen "call-downs" for loafing, the boss finally fired him and hired a boy by the name of Charles Carew, says the Erie magazine.

The joke of it was that Charles was just as lazy as Billy. After a day or so sitting on a hard stool and moving a hot valve back and forth, Charles was so disgusted with the work that he designed a scheme for getting around it.

When the engine was shut down at noon, he hunted up a strong cord. He tied one end to the valve and the other to a moving part of the machine, so when the wheel went round the valve would be jerked open. Then he rigged up a weight to slam the valve shut. Before the afternoon was over he had the fun of being able to lie down on the grass and watch the engine do all its own work.

He was stretched out comfortably on his back when suddenly the boss appeared. Charles scrambled up and was going to tear off the string and get busy on the job again; but the boss shouted, "Leave it alone!"

He watched the contrivance work for some time.

"You little devil," he said. "Tell me where I can find another lad as lazy as you are and I'll give you a handful of silver. I've a real job for you."

The world needs more lazy people —not the kind too lazy to use their heads, but the kind too lazy not to.

A Train, the Safest Place

After winning the five principal first awards for safety on railroads in the United States for 1927, including the Harriman gold medal for general safety and four first prizes of the National Safety council for the lowest injury rates among employes, the Union Pacific System again materially improved its safety records in 1928, according to information just made public by W. M. Jeffers, vice president.

Among the 3,091,964 passengers carried an average distance of nearly 300 miles in 1928, not one was injured in a train accident, that is, an accident to a train, and only ten were injured in alighting from trains or in any other way. This is a reduction of 37½ per cent as compared with 1927. The record means that the average passenger, if he had lived long enough, could have continued traveling for 88,965,125 miles, or 3,558 times around the earth, before receiving an injury from any cause, and that he could have expected to go on traveling indefinitely after that before being injured in an accident to a train.

With approximately 52,000 men and women working, there were 701 injuries to employes in 1927 that caused as much as a day's loss of time, and in 1928 there were 550, a reduction of more than 21 per cent in the one year, and of approximately 70 per cent in the last five years.

The 1928 record means that the average employe could have worked 99 and one-third years before losing a day's time from an injury.

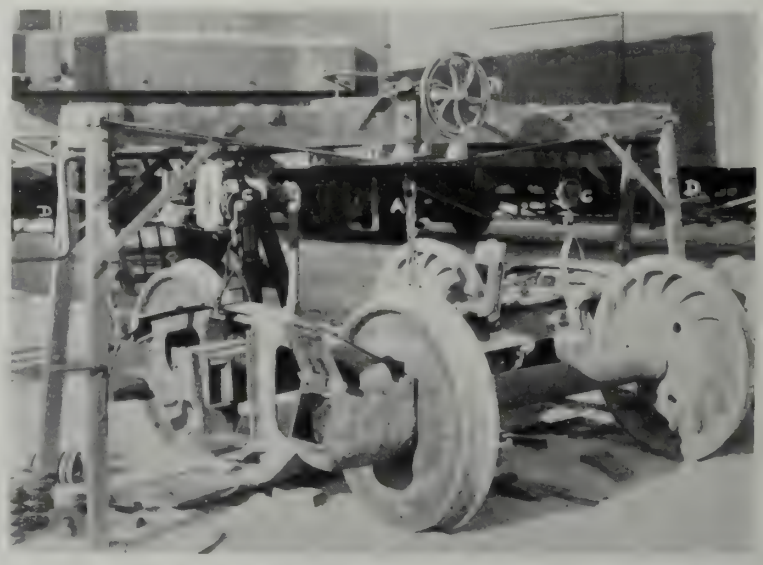
The most valuable discoveries have found their origin in the most trivial accidents.—*Pliny.*

No one has ever complained of a parachute not opening.

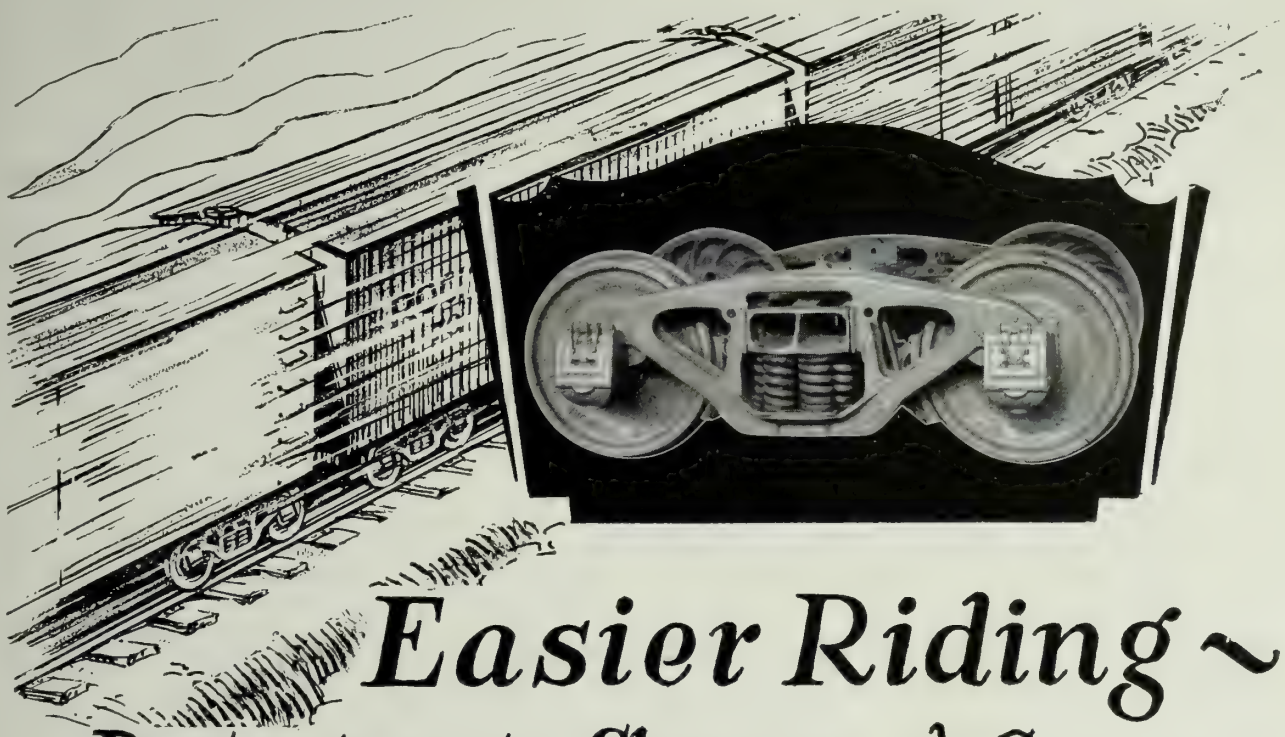
The chief fault of man is that he has so many small ones.—*Paul.*

That which we acquire with the most difficulty we retain the longest.—*Colton.*

No time is too short for the wicked to injure their neighbor.—*Seneca.*



The Southern Pacific's Portable Jack for Lifting Side Frames and Bolsters of Car Trucks.



Easier Riding ~

Protection to Shipper and Carrier

Bettendorf-Dalman "One Level" Trucks go a long way toward smoothing out the "rough spots" encountered in present-day freight handling. Their design is such as to maintain resiliency under heavy loads and road shocks, thereby insuring the *easy riding* qualities so necessary where fast train schedules prevail. Continuous car service and adequate protection to the shipper's commodity while in transit is thus provided.

High speed freight handling can return maximum profits only when the equipment is designed for that type of service. In this connection, Bettendorf-Dalman "One Level" Trucks leave nothing to be desired.

The Dalman Feature Adds Two Standard Coils to Each Spring Group

Greater safety to the lading is achieved by a reserve spring capacity more than ample to withstand the heaviest kind of service without the hazard of spring breakage.

THE BETTENDORF COMPANY

OFFICES AND WORKS BETTENDORF, IOWA

Fig. 1—Head Dropped for Lowest Cutting At Toe of Very High Rock Ballast Section.

Fairmont M24 Mowing Machine

During the mowing season of 1928 dozens of Fairmont M24 mowers operated with maximum efficiency on railroads having gravel, cinder or dirt ballast sections. On very high rock ballast sections the shoes or inner ends of both cutter bars did not reach low enough to cut vegetation as short as desired. This extra low cutting is now provided for by new vertically adjustable heads. Fig. 1 shows one of the heads dropped as low as possible. Fig. 2 shows the raised position for higher cutting. The operators do not leave the platform. Each raises or lowers the head on his side with the lower hand wheel illustrated.

This vertical movement constitutes a third adjustment where the 1928 machine had two, viz.: in and out with the H-beam, and the shoe hinged to the bottom of the head. The vertically adjustable head is needed only on roads having high rock ballast sections. Its cost may be saved if desired as the 1929 mower is supplied with or without the vertical adjustment.

Fairmont Quick Adjustable M24 mowing machines are made by Fairmont Railway Motors, Inc., Fairmont, Minn.

One indication of the long service which may be expected of them is the fact that 24 ball bearings and 14 Bower bearings are incorporated in the design.

Railroad Taxes Here and in Canada

American railroads pay annual taxes of $1,519.72 per mile of road. Canadian roads pay only $235.75. The Canadian taxpayer, in other words, carries a burden of actual transportation costs in that country which is assumed directly by the rail carriers of the United States. The above figures represent averages based upon operations during the five-year period 1923-1927.

This is the conclusion of a study of "Transportation Charges in the United States and Canada," for the Association of Railway Executives, by C. S. Duncan and E. F. Bilo. The study "is not intended as a criticism of methods or practices or policies in either country." Hence, there will be "no basis for drawing the conclusion that railway management is any more or less efficient in the one country than in the other." The analysis was undertaken because of four resolutions introduced in the senate at the last session of congress, directing the Interstate Commerce Commission and other government bodies to investigate the status of transportation charges in the United States and Canada, particularly on agricultural products.

In addition to relief from taxes, it is explained, this shifting of transportation costs in Canada to the taxpayers has taken place through government financial guarantees and the assumption of deficits by the government. After pointing out that deficits have occurred annually in the operation of the state-owned Canadian National Railways, the analysis shows that net annual deficits for the last five years alone have averaged $1,952 per mile of road.

"If the Class I roads in the United States were subsidized at the rate of $1,952 per mile, as the Canadian government is subsidizing the Canadian National," the report says, "it would aggregate $461,316,785. The excess in United States taxes, at $1,283.97 per mile, aggregates $303,441,041. The total subsidy and excess taxes equal $764,757,826.

"With the same governmental policy in respect to subsidy and taxes, Class I railroads in the United States could have handled all grain, flour and meal, and live stock wholly free of charge and still have retained annually $403,332,826 more revenue than they did retain in the period 1923-27.

"The western roads could have handled the same farm products wholly free of charge and still have retained annually $139,825,569 more revenue than they did retain in the period 1923-27."

Men love to ponder, and that is seed of our science.—*Emerson.*

Men's arguments often prove nothing but their wishes.—*Colton.*

We are told that "this year's world's output of motor cars will run into millions." We are glad of this hint, and will try our best not to be one of those millions. — *Trollicar Topics.*

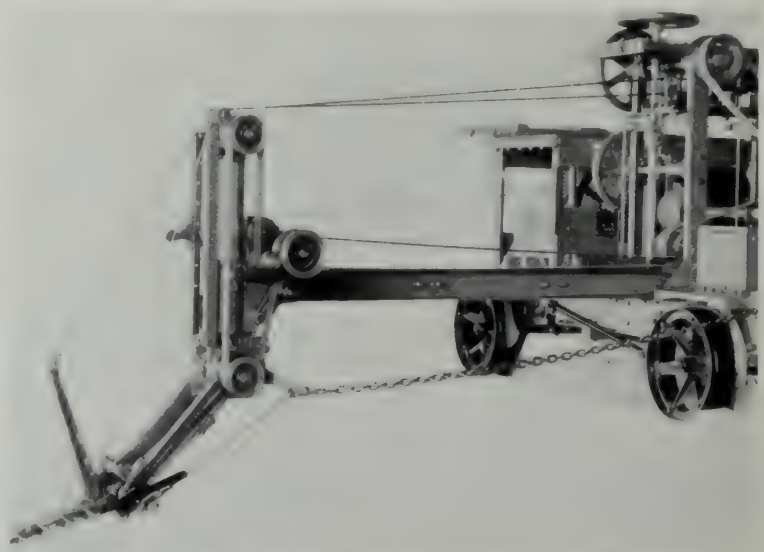


Fig. 2—Head Raised for Higher Cutting.

AUTOMATIC

TO do automatically that which human hands previously did has been proven again and again to be *Economy* of a very real and satisfying kind.

The ROBINSON CONNECTOR is *Entirely Automatic*. Among its benefits and economies are:

1—Speeds terminal operation. Upon this depends the effectiveness of large investments.

2—Reduces road delays.

3—Greatly prolongs the life of hose and minimizes Train Line Maintenance.

4—Reduces "break-in-two's" due to frequent bursting of hose. "Break-in-two's" damage equipment and often cause derailments and collisions.

5—Improves brake operation, and hence gives better control of train.

6—Reduces brake shoe wear and "creepy" brakes.

7—Reduces triple valve maintenance costs by providing a cleaner train line.

8—Saves the fuel now wasted (the figure is amazingly large) in pumping against train line leakage.

9—Increases car miles by speeding up the movement of trains, and hence reduces new car requirements.

10—Increases tonnage where brake control is the determining factor.

11—Reduces personal injuries by keeping men from between cars.

12—SAVES TIME—now the chief element in transportation.

ROBINSON AUTOMATIC CONNECTOR

"Building Automatic Connectors is our exclusive business"

415 Lexington Avenue
New York

Complete information on request

The News of the Month

What's Been Going on in Transportation, Railroads, Automotive, Supply, Aviation

Revolutionists Blew Up the Government Railroad Bridge Between Durango and Torreon, One Day Last Month. General Cardenas, Federal Commander, with 10,000 Troops, Laid A Temporary Track Around the Wrecked Bridge.

CLAIMS PAID by the railroads of the United States and Canada in 1928 growing out of loss and damage to freight shipments were the smallest for any year since the end of the World War, despite a continued upward trend in the amount of traffic handled, according to complete reports for the year just received from the rail carriers by the freight claim division of the American Railway Association. The amount of claims paid in 1928 totalled $36,557,243, a reduction of $2,155,816 compared with 1927 and a reduction of $1,630,072 compared with 1926. On the basis of the total number of cars loaded with revenue freight, freight claims paid by the railroads in 1928 averaged 68 cents a car compared with 72 cents in 1927.

For 1928, thirteen of the sixteen causes for freight claims reflected reductions under 1927. The greatest reduction for any one item resulted from the increased promptness with which freight shipments were handled during the past year compared with the preceding twelve months, reflecting one of the results of the increased efficiency with which the railroads are now being operated. Loss and damage claims due to delays in the movement of freight shipments amounted to $2,816,624 in 1928, a reduction of $701,989 compared with similar claims in 1927. As a result of the improved condition of railway equipment, claims resulting from defective equipment in 1928 showed reduction of $82,620 compared with the year before. Claims resulting from wrecks, robbery, unlocated damage, error of employes, improper handling and loading, and freezing or heater failure all showed reductions under 1927. Increases, however, were reported in the amount of claims resulting from rough handling, concealed damage and fire or marine loss or damage.

Fine Service of the P. R. R.

Striking improvements in the efficiency of Pennsylvania Railroad freight train operations were achieved last year, according to statistics just compiled. The figures also reveal improvements of impressive magnitude for six successive years. The average number of freight cars hauled in trains in 1922 was 40; in 1924 it was 43; in 1926, 45; and last year all previous figures were surpassed when the average train handled 55 cars.

The average tonnage carried in trains has been increasing constantly over the same period. In 1922 it was 838 tons; in 1924, 858 tons; in 1926, 899 tons; and in 1928, 1,028 tons. The average train speed in 1928 was 11.6 miles an hour, as compared with 10.6 miles in 1926; 10.2 in 1924, and exactly 10 miles an hour in 1922.

An arbitrary measure of railroad freight service, known as the net ton miles per train hour, or, in other words, the number of tons of lading carried one mile for each hour of train operation, reflects the combined influence of lengthened trains, heavier trains and the faster schedules. In 1928 this figure was 11,866 net ton miles per train hour. As compared with this result, 1926 showed 9,488 net ton miles; 1924, 8,723 net ton miles, and 1922, 8,366 net ton miles. Based on this factor, last year's record marked an increase in efficiency of 42 per cent as compared with 1922.

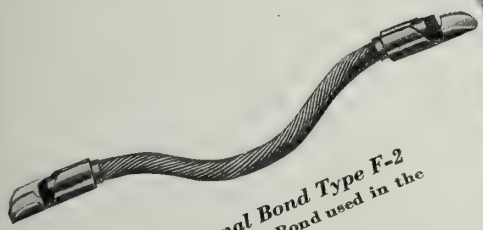
The effort to consolidate and length-

CONGRATULATIONS

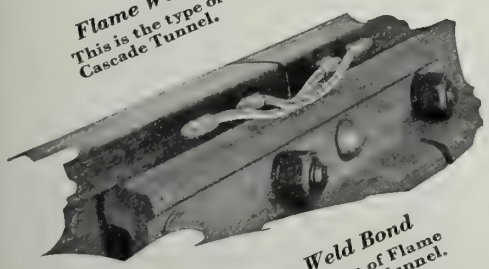
The American Steel and Wire Company wishes to tender a deserved tribute to the Great Northern Railroad and A. Guthrie and Company, contractors, on the successful completion of the Cascade Tunnel.

It was a tremendous project nobly conceived and ably executed, truly an epoch making achievement.

This Company naturally takes pride in the fact that its Flame Weld Bonds were used in the electrification of the tunnel, thus playing some part in this great forward step in transportation.



Flame Weld Signal Bond Type F-2
This is the type of Signal Bond used in the Cascade Tunnel.



Application of Flame Weld Bond
This shows the double application of Flame Weld Bonds used in the Cascade Tunnel.

American Steel & Wire Company

Subsidiary of United States Steel Corporation

Offices in—208 So. LaSalle St., Chicago, 30 Church St., New York, Boston, Cleveland, Worcester, Philadelphia, Pittsburgh, Buffalo, Detroit, Cincinnati, Baltimore, Wilkes-Barre, St. Louis, Kansas City, Minneapolis-St. Paul, Oklahoma City, Birmingham, Atlanta, Memphis, Denver, Salt Lake City.
U. S. Steel Products Co.: San Francisco, Los Angeles, Dallas, Portland, Seattle.
Export Representative: 30 Church St., New York City

en freight trains, load them heavier and move them more quickly over longer distances is shown by the fact that in 1923 the total freight train mileage showed a decrease of 5,563,163 miles under the previous year, while the freight car mileage revealed an increase over the preceding year of 8,607,251 miles. The impressive achievements recorded by these figures have played a vitally important part in reducing the railroad's transportation expenses, and in increasing the net revenues from its operations.

Important economies in locomotive fuel consumption, especially in the freight train service, have been achieved also during the last seven years. A steady reduction in the quantity of coal burned to move a given volume of freight has been registered since 1922. Approximately 17 per cent less fuel was consumed in 1928 to produce 1,000 gross ton miles of freight service than in 1922. "One thousand gross ton miles" is a measure of service equivalent to moving 1,000 tons of combined weight of train and lading a distance of one mile. Coal consumption is based on this combined factor, for the energy supplied by the coal must haul the train as well as the lading.

These economies in the use of fuel reflect the combined efforts of management and men to improve the efficiency of the freight train and engine service, particularly in the operation of more cars to the train, the development of locomotives capable of hauling longer and heavier trains without a corresponding increase in fuel consumption and greater efficiency in the actual firing of the engines themselves.

Improvement also has been recorded in the passenger service, the records for 1928 showing a reduction of 8 per cent, compared with 1922, in pounds of coal burned per passenger train car mile. "Pounds of coal per passenger train car mile" is a unit of measurement which represents the quantity of fuel consumed in moving a passenger car one mile.

Missouri Pacific to Have Air Service

Plans for establishing aerial transportation in the Southwest as soon as conditions warrant are announced by the Missouri Pacific Railroad.

The company has announced appointment of Linton Roberts, aeronautical expert and former army pilot, as aeronautical engineer, and revealed that it had purchased the first "railroad airplane," a Travelair biplane, with which to make a survey of aerial transportation needs and facilities in the territory served by the railroad.

SUPPLY MEN COMING ALSO

The welcome news has just reached the Pacific Coast that the Railway Supply Manufacturers' Association is to attend the yearly convention of Division V, Mechanical, to be held in Los Angeles June 25-28, and the convention of Division VI, Purchases and Stores, at San Francisco, June 24-26. Ordinarily the supplymen's association does not attend these conventions except in exhibition years. The departure from the old custom is due to the desire of the association to be present when the two big divisions of the A. R. A., have their first meetings on the West Coast.

The official circular containing the cheerful news gives information as to railroads and hotels, the customary directions about registration and badges, and then, under the head ot "Weather Conditions," suggests that the visitors provide themselves with coats or wraps. Leaving their eastern homes in the hot days of June many of these travelers are likely to ignore this last suggestion. It will be a mistake to do this.

Bring your overcoats and wraps. Naturally, you won't need the big ulsters and coonskins, and you can come without red flannel underwear, but don't forget that California, in the summer is cool after four o'clock in the afternoons, and out on the water or up in the mountains the air is cool enough almost always to make a wrap or heavier coat extremely pleasant to wear. This is particularly applicable to San Francisco where the temperature always is much cooler than in Southern California.

Another thing: Don't forget to bring along your helmet and other aviation togs. You are coming to a land where airminded people are the rule. Perhaps you have golf things, and imagine you are rather nifty in a sporting way. You'll certainly need the old helmet and the wool-lined coat for the air trips.

Don't make the mistake common to easterners in visiting the Pacific Coast: Don't take off everything the law allows just because it is a bit warm in crossing the desert. Wear the duds you started with, and keep the old greatcoat handy.

Remember, if you don't like the thought of a railroad journey in summertime there are air liners every day to "fly you out," an ordinary expression on the coast. Ten thousand feet up you'll never notice the desert.

Work for Salesmen in China

Cable news from Nanking says that Sun Fo, minister of railways, has introduced before the Kuomintang congress a huge economic reconstruction program planned by the Nationalist government covering 50 years and involving an expenditure of 12½ billion dollars, gold.

The plan calls for the construction of 20,000 miles of railway and 10,000 miles of motor roads. It also calls for $50,000,000 gold appropriation for the construction of a national capital at Nanking.

Sun Fo proposed that the yearly amount required, which is $250,000,000, be obtained by a government appropriation of $100,000,000, foreign loans of $100,000,000 and reconstruction bonds of $50,000,000.

Lindbergh Piloted the Patrician

The Keystone monoplane, Patrician, brought to the West Coast for its trial flights in March, was taken up at Los Angeles by Col. Charles Lindbergh, March 20, with officials of the Keystone Aircraft Corpn., and guests. Colonel Lindbergh piloted the ship to San Francisco, March 22, through the most adverse weather conditions. To quote the famous flier, "that," said he, "certainly is the worst weather I ever encountered in California and I've never experienced anything much worse any place. We had every condition I can think of except snow. There was a wind and rain and fog and clouds and tail winds and head winds and plenty of bumps but I think that the Patrician performed in very excellent fashion."

Accompanying Lindbergh on the flight were Vice President William Stewart of the Union Oil Co.; James Warner, who burst into sudden fame as the radio operator of the Southern Cross; Capt. Walter Parkin of the department of commerce; W. E. Thomas of the Pacific Aeromotive Corpn., distributors of the Wright engines with which the Patrician is powered; John Bowers, head of the Western College of Aeronautics; President Edgar Gott and Treasurer Ken Fraser of the Keystone Company, builders of the Patrician, and several representatives of the press who presumably were taken along to lend an air of financial solidity to the party after Harry Guggenheim failed to show up.

The trip was in the nature of a service test of the Keystone Patrician which Col. Lindbergh was making on behalf of the various air transportation companies with which he is affiliated.

A huge crowd swarmed over the airport at Oakland to greet the party and the acting Mayor delivered a brief ad-

Over 13% of all Southern Pacific Locomotives *Are Booster Equipped*

FROM the fast Atlantics that haul express trains to 4-10-2's used in heavy freight service, the Southern Pacific Company has made good use of The Locomotive Booster.

Smooth starting, quicker acceleration to road speed and extra power for emergencies have won its place for The Locomotive Booster.

To get extra power, some roads have resorted to larger locomotives. These locomotives cost more to run, cost more for maintenance and their extra power is used but once or twice over the division.

In The Locomotive Booster is a power reserve ready for instant action that is applicable to every locomotive. A power reserve that will put the punch into train movement and enable a smaller locomotive to do a given job.

FRANKLIN
RAILWAY SUPPLY COMPANY, INC.

The Locomotive Booster Capitalizes Idle Weight and Spare Steam

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO MONTREAL

dress of welcome which was a total loss as far as Lindbergh was concerned for the reason that the mayor planted himself directly in the blast of the propeller on one of the 525-horsepower Wright Cyclone engines.

The crowd was so large and boisterous that Lindbergh decided to camp in the plane temporarily and turned the spacious cabin of the Patrician into a reception room. Numerous dignitaries such as Harris M. Hanshue, president of the Western Air Express and Fokker companies, and Walter Varney, whose line carries the mail from Seattle to Salt Lake City, dropped in with their wives and a regular army of typical "airport aces" stampeded into the cabin.

After the tests, it was said, the Patrician would fly home to Philadelphia.

Direct Steaming for the Boston & Maine

An enginehouse without fire and smoke, the first of its kind in New England and one of the largest in the country, is to be erected by the Boston & Maine as the latest project for increased efficiency and modernization of its Boston yards. With attendant facilities this enginehouse containing every modern device will cost about $1,500,000.

Notable among the improvements will be the "direct steaming" system under which incoming locomotives will dump their fires in a water-filled pit outside, move into their stalls under the steam which remains in the boilers and then hook onto a steam line supplied from a power plant outside. Although fireless, steam will thus be kept in their boilers. When called for the road the engines will operate on power house steam until their own fires are built outside. This system, it is stated will consolidate enginehouse forces, keep the entire locomotive fleet in readiness for instant use and effect further economies in fuel consumption, as well as "de-smoking" enginehouse operation.

For fueling the new engine terminal will have one of the largest coaling docks in the country. This concrete and steel overhead "pocket", of 2000-ton capacity, will be kept full from a coal dump by automatic hoisting machinery. Another innovation will be the first circular ash pits in New England, designed and placed both for safety and for efficient removal of cinders.

The new enginehouse will be erected on a triangular plot in Somerville, south of the Boston & Maine inbound and outbound classification yards, lying between the southern division and Fitchburg division main lines. The building will be about 550 feet in diameter, with 50 stalls capable of housing the largest locomotives, with provision for adding stalls. With it will be connected a new power house, machine shop and office, with new watering, sanding and washing facilities. In the center of the house a 110-foot turntable is to be installed.

Safety Section Meeting

The ninth yearly convention of the safety section of the American Railway Association will be held at the Claypool Hotel, Indianapolis, April 23-24-25.

Air Line Excursion Rates

A slash of one-third in all its passenger rates was announced April 9, by Western Air Express, the new rates to become effective April 13, and continue for 30 days. The excursion rates, it is stated, are being put into effect in celebration of the company's third anniversary, April 17, and are described as a gesture of appreciation to the traveling public for support given to air transportation during the last three years.

The new rates, it is said, will be the lowest prevailing on the lines of any air transport company in the United States, and will closely rival prevailing railroad rates.

Not Many Passengers There

Permission has been granted the Colorado & Southern Ry. to abandon its passenger trains between Ft. Collins and Greeley, Colo. Motor buses of the Colorado Motor Way, Inc., will take care of the passenger traffic. It was shown that the number of passengers hauled by the railroad in 1923 was 33,098 and that there had been a gradual decrease, the number hauled by the railroad in 1928 being only 7,038.

Tie Producers to Meet

The National Association of Railroad Tie Producers will hold its eleventh annual convention at the Arlington Hotel, Hot Springs, Ark., on April 23-25.

Here's Cheerful News

A suit to recover $10,219,700 alleged damages from the Inland Waterways Corpn., for its failure to carry out the terms of contract for leasing government towboats and barges for use on the Mississippi River has been filed by Edward F. Goltra, of St. Louis, at Washington. Goltra says the United States leased to him 19 barges and three towboats, and later deprived him of the contract after he had gone to great expense.

Improved Truck Designs

Among the new developments shown in lantern slides and described at a recent meeting of the Pennsylvania section of the Society of Automotive Engineers by J. W. Winchester of Newark, N. J., superintendent of motor equipment of the Standard Oil Co. of New Jersey, is a tank truck for fueling airplanes. High-grade fuel is pumped up through a meter to the airplane tank, no cans being used. Lubricating oil tanks are carried at the sides of the fuel tank, and an air pump is provided for inflating the airplane tires. Water can also be supplied, if necessary.

Another development is a novel frameless tank truck of about 2,400 gallons capacity, the design for which was worked out by certain truck makers only after a great deal of difficulty was experienced in inducing them to undertake it. One of the experimental trucks has run approximately 70,000 miles and another has run 30,000 miles. These trucks, said Mr. Winchester, haul trailers, the combined capacity of a truck and trailer being 7,000 gallons. Rubber shock absorbers are used in the truck fifth wheel and in the rear spring hangers. The design has reduced operating costs, as it has been possible to haul about one-third greater loads.

In another truck a tank is mounted on a three-point suspension on the chassis which has proved successful in avoiding frame breakage in the larger trucks. Three-point suspension of cabs also has prolonged the life of the cabs.

Pickwick Has Air Service

Passenger and express service of Pickwick Airways, Inc. started regular service in March. The first schedule consists of two planes each way daily from Los Angeles to San Diego, which will be extended to include daily service from Los Angeles to San Francisco and from Los Angeles to Texas points via Phoenix as rapidly as necessary planes can be delivered.

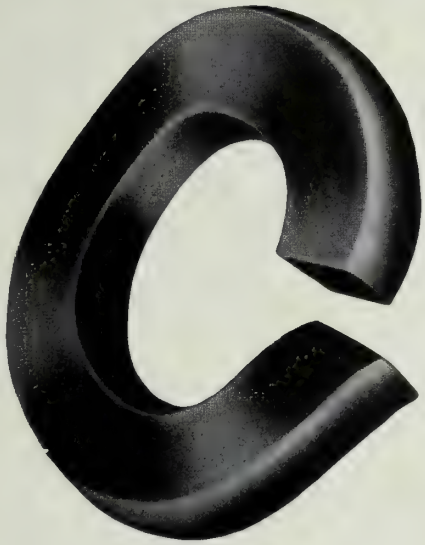
Ten-passenger Bach tri-motored planes using Pratt & Whitney and Comet motors constitute the present equipment. Additional planes of the same make are being rushed into completion under contract.

Reducing Airplane Fares

Drastic reduction of fare on its line between Chicago and Minneapolis has been announced by the Northwest Airways, Inc. One way passage between Chicago and the twin cities now costs $30. The former fare was $45. The company placed in effect a round trip rate of $50, with a 30-day stopover privilege.

Pacific Ry. Club Elects

At its 12th yearly meeting in San Francisco, March 26, the Pacific Railway club elected the following officers for 1929: President, J. P. Quigley, superintendent of transportation and telegraph, Western Pacific; first vice



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THE NATIONAL LOCK WASHER COMPANY
Newark, New Jersey, U. S. A.

president, K. C. Ingram, general advertising manager, Southern Pacific; second vice president, J. P. Potter, vice president, Key System Transit Co.; treasurer, Lacy L. Galbraith, conductor, Santa Fe Railway.

William S. Wollner, who has been the club's secretary since it was organized in 1917, will continue in that capacity.

At the banquet that featured the club's annual meeting, presided over by F. E. Yoakum, the retiring president, the speakers were T. S. Louttit, president of the railroad commission of California, and Doctor Charles Edward Skinner, delegate from the United States to the World Engineering Congress in Tokio. These addresses were broadcast through radio station K. Y. A.

The Pacific Railway club starts its 13th year with a membership in excess of 1,000, representing all official ranks and departments of railroading as well as all Pacific Coast roads. This diversification of membership is reflected in the roster of officers and membership of the club's board of governors.

But You Must Pay for Your Meals

The question often is asked what, if anything, the railroads are doing to offset bus competition, and to "keep in the going" when the air service is established. The New York Central is trying to give the answer. Effective April 28 it will put on a new train between Cincinnati and Detroit, the Motor Queen, which will maintain a schedule of seven hours between these two cities, leaving Cincinnati at 3:20 p. m., arriving Detroit 10:20 p. m., and southbound, leaving Detroit at 3:00 p. m., arriving Cincinnati 10:00 p. m.

These trains will carry observation coach, dining-lounge car, club car, and coaches with individual de luxe seats.

A passenger leaving Atlanta in the evening, approximately 6 p. m., arrives Cincinnati early next morning and has the opportunity of spending a business day in Cincinnati, and gets to enjoy the comforts of a room, bath and bed the same evening in Detroit, arising fresh and ready for the day following.

There is no extra charge for the use of any of the equipment on these trains.

Scholarships for the Brainy

The Pennsylvania Railroad announces that the John Clark Sims memorial scholarship at the University of Pennsylvania, open to employes or sons of employes of the Pennsylvania System, becomes vacant this year and will be filled by competitive examination in June. Employes or sons of employes wishing to take the examination, which will be conducted by the College Entrance Examination Board of New York City, should make application by letter to R. V. Massey, vice president in charge of personnel, Broad Street Station, Philadelphia, Pa., on or before May 15, 1929.

Competitive examinations will be held in June to fill two vacancies next fall in the Frank Thomson scholarships, available to sons of living or deceased employes of all lines in the Pennsylvania System. Income from a trust fund, established in 1907 by the children of Frank Thomson, formerly president of the Pennsylvania in memory of their father, provides eight scholarships to enables sons of Pennsylvania employes to obtain a technical education and thus better qualify themselves for employment by the company. Scholarships are for the full course of four years and pay a total annual income of $600. Successful candidates may select any university, college or technical school, subject to the approval of the company.

The College Entrance Examination Board, 431 West 117th street, New York, which will conduct the competitive examinations for the railroad company, will upon request, supply information regarding rules, regulations and requirements to prospective candidates.

Special attention is invited to the fact that, while applicants already in college are not excluded from competing for the scholarships, the first intention of the donors in establishing the trust fund was to aid worthy sons of employes, who otherwise would not have an opportunity to get a technical education. Applications from students already in college will receive the consideration they merit, keeping in mind the intention of the donors of the trust fund, and such applicants to receive consideration must obtain a mark of at least 50 per cent in all the subjects in which they are examined.

The Stevens Institute of Technology at Hoboken, has, through the Pennsylvania's management, offered a tuition scholarship for the academic year of 1929-30 to a son of a living or deceased employe of any of the lines in the system. The winner of this scholarship will receive free tuition, amounting to about $600, for the first year of his college course. He also will receive board and lodging, as well as tuition, at a six-weeks civil engineering camp in the summer of 1930. In the succeeding years he will be eligible for such remission of tuition as may be warranted by his scholastic record.

Stevens Institute will award this scholarship on the recommendation of the Pennsylvania Railroad Company. No competitive examination will be held, but candidates, in submitting their application to R. V. Massey, vice president in charge of personnel, Broad Street Station, Philadelphia, prior to July 1, must supply complete transcripts of their high school or preparatory school records.

This scholarship memorializes the fact that Colonel John Stevens built and operated, in 1825, on his estate at Hoboken, now included in the campus of Stevens Institute, the first American locomotive to be driven successfully by steam on a track, thereby making the first contribution to the history of the Pennsylvania Railroad System.

They're Coming, Father Abraham

The Western Pacific and the Great Northern Railway now have five engineering parties working on different sections of the survey of the proposed 200-mile railroad which will close the gap between the Southern Oregon terminus of the Great Northern at Klamath Falls and the main line of the Western Pacific at Paxton or Keddie, Cal. Survey of the 80-mile sector of this connecting line from Klamath Falls south to Lookout, Modoc County, Cal., is being made by the Great Northern. The survey of the 120 miles from the Western Pacific main line north to Lookout, via Westwood, is in charge of the Western Pacific engineers. The total personnel of the engineering parties, exclusive of cooks, truck-drivers, etc., is approximately 80.

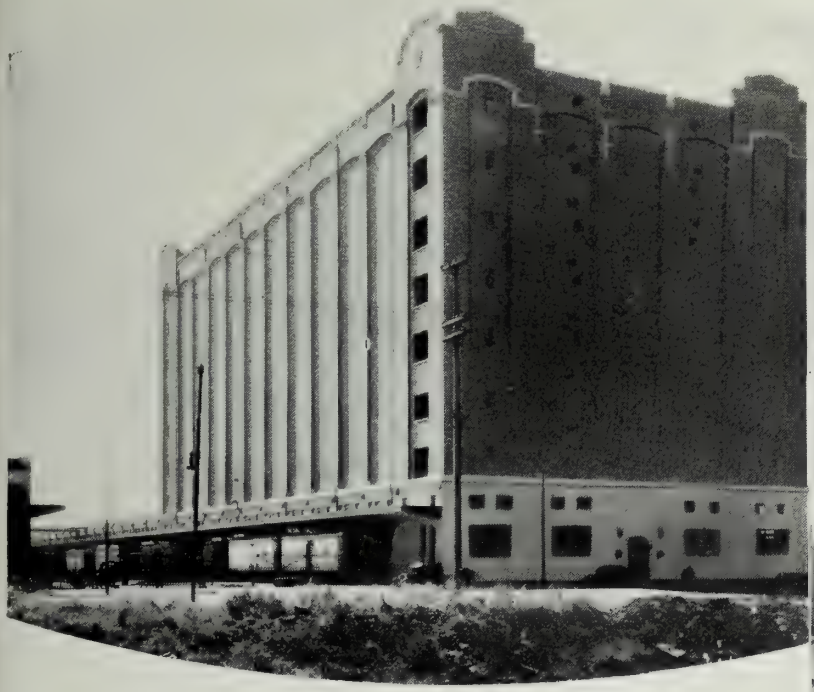
Division VI Meets June 24

The tenth yearly meeting of Division VI—Purchases and Stores, will be held at San Francisco, June 24, 25 and 26, at the Palace Hotel. The sessions will be held in the convention room of the Palace Hotel, convening at 9:00 a. m., Monday, Tuesday and Wednesday. Rooms should be reserved as far in advance as possible.

Loadings Some Higher

Loading of revenue freight for the week ended March 23 totaled 960,698 cars, the car service Division of the American Railway Association announces. This was an increase of 3,238 cars above the preceding week this year with increases being reported in the loading of live stock, forest products, merchandise less than carload lot freight and miscellaneous freight. All other commodities, however, reported decreases.

Compared with the same week last year, loading of revenue freight for the week was an increase of 10,504 cars, but a reduction of 42,838 cars under the corresponding week in 1927.



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PERISHABLE PRODUCTS TERMINAL at Philadelphia for the Baltimore & Ohio Railroad and the Reading Company.

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Railway Construction

Tracks and Yards

ARKANSAS.—The Frisco has let a contract to Reid & Lowe, Birmingham, for second main track between Clarksdale and Harvard, five miles.

CALIFORNIA.—The Southern Pacific has permission to construct a 14-mile branch line from Knights Landing to Boyers Landing.

OREGON.—The Idaho Pacific, incorporated to build a railroad from Nyssa, on the Union Pacific, southward to Winnemucca, Nev., on the Western Pacific and the Southern Pacific, has been granted a charter. Robert Phillips, John Leeds Kerr, and Guy C. H. Corliss are the organizers.

TEXAS.—The Kansas City, Mexico & Orient of Texas has asked permission to build a 65-mile line from San Angelo to Sonora to be operated under lease by the Panhandle & Santa Fe.

—Contract has been awarded the Lone Star Construction Co., San Antonio, by the Santa Fe for an 18-mile extension of the Cane Belt from Lane City to Guy. The contract covers grading and bridging; it is intended to lay track with company forces. The 17-mile extension from Guy to Thompson, authorized by the I. C. C., will not be built as it has been arranged to use the Southern Pacific line from Guy and Rosenberg.

WASHINGTON. — The Northern Pacific and the Union Pacific have asked permission to construct a 60-mile line, at an estimated cost of $6,000,000, from Aloha, a point near Moclips on the Northern Pacific's Grays Harbor Branch, to the south bank of the Hoh river. The greater part of this distance is in the Quinault Indian Reservation and National Forest Reserves.

WEST VIRGINIA. — The Chesapeake & Ohio has let a contract to Board & Board, Charleston, for grading and masonry work for a third track between Barboursville and Guyandot. Hunt Forbes Construction Co., Huntington, has a contract for grading and masonry work on a third track between Huntington and Kenova. Reed & Laysley Co., Inc., South Charleston, has a contract for grading and masonry work for the track between the K. & W. V. (New York Central) at Beech Glen, and the C. & O. at Bryce. This includes a bridge over the Gauley River.

Buildings and Structures

ONTARIO.—Tecumseh. The Canadian National plans new buildings, shops and yards here to cost $1,000,000.

FLORIDA. — Pensacola. Work has been started on the Louisville & Nashville's new warehouse here. The building, which is part of the $500,000 improvement project the road has planned for its dock and storage facilities here, will be 102 by 402 feet and will have storage space for 25,000 tons of freight.

ILLINOIS.—East St. Louis. The Mobile & Ohio has let a contract to the Ellington-Miller Co., Chicago, for an 18-stall enginehouse, employes' building, boiler house and storehouse here to cost about $180,000.

KENTUCKY. — Covington. The Chesapeake & Ohio has let a contract to J. T. Nuckols, Richmond, Va., for a freight depot to cost $97,500.

—Stevens. L. W. Hancock, Louisville, has a contract from the Chesapeake & Ohio for work on the engine terminal improvements here.

MISSOURI. — Lindenwood. J. W. McMurry Contracting Co., Kansas City, has a contract from the Frisco for concrete engine pits and foundations for a 12-stall addition to the enginehouse here.

—St. Louis. The Roberts & Schaeffer Co., Chicago, has a contract from the Terminal Railroad of St. Louis for an "N. & W." type multiple pit, three-track electric cinder handling plant.

NEW YORK. — Schenectady. The New York public service commission has plans from the New York Central for eliminating two grade crossings south of here at a cost of about $203,000.

OHIO.—Cheviot. Fairbanks, Morse & Co., will build a coaling station and sand handling facilities here for the Chesapeake & Ohio.

—Cleveland. The Big Four has let a contract to the Ellington Miller Co., Chicago, for $200,000 terminal improvements at Linndale. This is to include an office building, enginehouse, storehouse, shop building and cinder pits.

—Lima. The Erie plans to extend two passing tracks near here to accommodate 140 to 160 cars, at a cost of about $50,000.

—Linndale. The Roberts & Schaefer Co., has been let a contract by the Big Four for a 600-ton capacity, reinforced concrete automatic electric locomotive coaling plant.

—Marion. The Erie plans to construct, in 1929, a $55,000 addition to the classification yard here and to install flood lights and rearrange the eastbound manifest yard.

—Toledo. The American Bridge Co., Chicago, has a contract from the Toledo Terminal for a double track movable bridge over the Maumee River. The cost is to be about $1,000,000.

OKLAHOMA.—Oklahoma City. The Union Bridge Construction Co., has a contract from the Santa Fe for the substructure of a bridge over the North Canadian River here.

—Oklahoma City. The Holmboe Construction Co., has a contract from the Frisco for a freight station here which, with accompaning facilities, will cost $344,000.

VIRGINIA.—Clifton Forge. Sand-handling facilities for the Chesapeake & Ohio here will be constructed by Fairbanks, Morse & Co., Chicago. John W. Cowper Co., Inc., Richmond, has a contract for a new enginehouse and shop facilities.

Fulton. J. H. Montague, Richmond, has a contract from the Chesapeake & Ohio for grading work for track changes here. Fairbanks, Morse & Co., Chicago has a contract for coaling station, sand handling facilities and cinder conveyors.

WEST VIRGINIA.—Hinton. The Chesapeake & Ohio has let a contract to Fairbanks, Morse & Co., for coaling station, sand handling plant and cinder conveyors here. F. H. Clement & Co., Bethlehem, Pa., has a contract for grading and masonry work in the extending of tracks and relocating of main lines here.

Locomotive Orders

According to the A. R. A., locomotive orders to March 1 totalled 291 compared with 171 on the same date in 1928. New or rebuilt locomotives placed in service in the first two months of 1929 totaled 80.

Locomotives in need of repair on the Class I railroads on March 15 totaled 8,781 or 15.1 per cent of the number on line, 8.4 per cent in need of classified repairs and 6.7 per cent in need of running repairs. Serviceable locomotives in storage March 15 totaled 5,265 compared with 5,132 on March 1.

The Rock Island is in the market for 25 4-8-4 type and five 4-8-2 type; Akron & Barbeton Belt is inquiring for three switchers; Chicago & Illinois Midland, two 2-8-4 or 2-10-2 type locomotives; Chicago, Indianapolis & Louisville, ten Mikados; the Omaha, four 2-8-2 type

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and five 4-6-2 type; Elgin, Joliet & Eastern, six 2-8-2 type; Southern Pacific, eight 4-8-2 type and ten extra tenders; Standard Oil Co. of Indiana, one or two switchers. The New York, Chicago & St. Louis, it is reported, will buy four Hudson type locomotives.

The Chicago & North Western ordered 25 4-8-4 type from Baldwin; the Erie, 15 switchers from Baldwin, 20 2-8-4 Berkshire type and 15 extra tenders from Lima; Hamilton Coke & Iron Co., one 2-8-0 type from Baldwin; Illinois Terminal RR. System, three 2-8-2 type from Baldwin; Manufacturers Railway, two heavy duty freight locomotives from Baldwin; New Cornelia Copper Co., four switchers from American; New York, Ontario & Western, ten Mountain type and six extra tenders from American; Pere Marquette, ten switchers from Baldwin; Southern Pacific, 16 Mallets from Baldwin; Union Railway Co., 12 switchers from Baldwin; Manila Railroad, six locomotives from Baldwin; Tientsin-Pukow, China, ten Mikados from Baldwin. The Norfolk & Western will build 30 tenders in its Roanoke shops.

Passenger Car Orders

Orders for passenger cars placed since the March issue of Transportation include the following: Delaware & Hudson, three mail and baggage cars with American Car & Fdy. Co.; Great Northern, five gas-electric rail motor cars equipped with Electric-Motive units with St. Louis Car Co.; Louisville & Nashville, four dining cars with American Car & Fdy. Co.; Missouri-Kansas-Texas, one steel business car shell with American Car & Fdy. Co.; Northern Pacific, seven gas-electric rail motor cars equipped with Electro-Motive units with St. Louis Car Co.; Trinity & Brazos Valley, three gas-electric rail motor cars equipped with Electro-Motive units with Pullman Car & Mfg. Corpn. Directors of the New Haven have authorized the spending of $6,500,000 for 90 coaches, 10 combination coaches, 15 compartment mail cars, six dining cars, 20 gas-electric rail motor cars, 24 trailers for rail motor cars, three multiple unit motor cars and six multiple unit trailer cars.

The Chicago & North Western is inquiring for from 24 to 72 suburban cars; Erie, ten express cars and five gas-electric rail motor cars; Hocking Valley, three mail and express cars; New York Central, 10 dining cars, 10 passenger and baggage cars, 20 baggage cars and 30 milk cars; Southern Pacific, 21 gas-electric rail motor cars. The Pacific Gas & Electric Co., San Francisco, will purchase seven new street cars.

Freight Car Orders

According to reports filed with the A. R. A., freight cars on order on March 1 totaled 37,820 compared with 21,726 on the same date last year. On February 1, this year, 30,216 freight cars were on order. New and rebuilt freight cars placed in service in the first two months of 1929 totaled 3,566, of which box cars totaled 1,442; coal cars 856; flat cars 589; refrigerator cars 568; stock cars 100, other classes 11.

Class I railroads on March 15 had 140,571 freight cars in need of repair or 6.4 per cent of the number on line, 4.5 per cent in need of heavy repairs and 1.9 per cent in need of light repairs. This was a decrease of 4,049 cars under the number reported on March 1, at which time there were 144,620 or 6.6 per cent. Surplus freight cars in good repair and immediately available for service on March 23 totaled 261,290, an increase of 22,772 cars compared with March 15, at which time there were 238,518.

The Chicago & North Western is inquiring for from 1000 to 2500 box cars; Southern Pacific, 300 flat cars; New York, Chicago & St. Louis, 250 gon-

The Bird-Archer Company

1 E. 42nd St., New York City

Realizing that in order to make the Bird-Archer Boiler Chemical treatment a success, locomotive boilers must be blown regularly, this Company has placed on the market a Blow-off Cock, with various types and sizes to meet the requirements of the railroads. Our latest booklet will be mailed to you from our nearest office upon request.

FLANGE
Blow-Off Cock with Joint-Ring Strainer
(Northwestern Type)

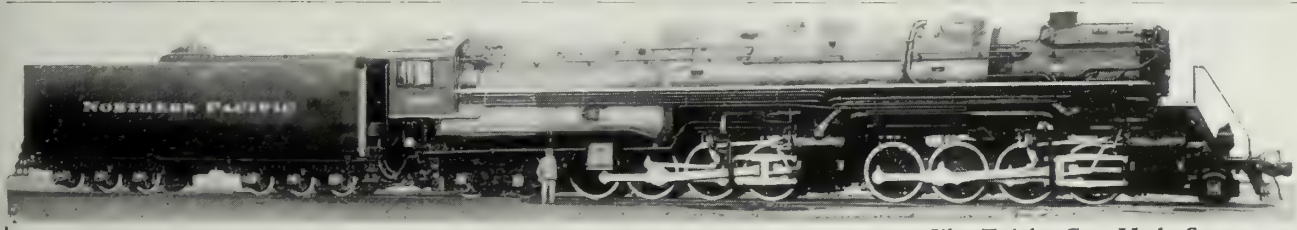
PHILADELPHIA CHICAGO ST. LOUIS MONTREAL WINNIPEG
BUENOS AIRES MANILA AUSTRALIA

dolas; Anglo-Chilean Consolidated Nitrate Corpn., 100 steel ore cars; American Rolling Mill Co., five all steel flat cars and five low side steel gondola cars; Northern Pacific, 100 stock cars; Chesapeake & Ohio, 577 steel hopper bottom gondola car bodies; Pacific Fruit Express, 600 underframes for refrigerator cars.

The outstanding order of the month is that of the New York Central for 4,500 cars placed as follows: 1000 box cars with American Car & Fdy. Co.; 1000 automobile cars with Pullman Car & Mfg. Corpn.; 500 box cars and 500 hopper cars with Standard Steel Car Co.; 1000 gondolas with Pressed Steel Car Co.; 500 gondolas with General American Car Co. The American Bridge Co. ordered 10 flat cars from Koppel Industrial Car & Equipment Co.; American Oil Co., three tank cars from General American Tank Car Corpn.; Baldwin Locomotive Works, six air dump cars from Magor Car Corpn. and four gondolas from American Car & Fdy. Co.; Rock Island, 500 box car underframes and 100 ice car underframes from Bettendorf Co.; Cities Service Tank Line, five tank cars from General American Tank Car Corpn.; Nashville, Chattanooga & St. Louis, 50 hopper cars and 150 gondolas from Pullman Car & Mfg. Corpn.; National Railways of Mexico, 1200 box cars from Pullman Car & Mfg. Corpn., and 240 narrow gauge cars from Standard Steel Car Co.; Northern Pacific, 500 gondolas from American Car & Fdy. Co.; Union Tank Car Co., 300 tank cars from American Car & Fdy. Co.; Virginian Railway, 500 hopper cars from Virginia Bridge & Iron Co. The Burlington will build 750 hopper cars in its own shops; Hocking Valley, 100 flat cars in its own shops; Frisco, 365 flat bottom coal cars in its own shops.

Bus and Truck Orders

Recent bus orders and deliveries include the following: Beech Grove Traction Corpn., Indianapolis, seven 21-passenger Reo buses; Brea Bus Co., 23 Model 54A White buses; Citizens Transit Co., Oil City, Pa., three 29-passenger Dodge buses; Des Moines Winterst Bus Co., one 21-passenger Mack parlor car bus; Detroit Motorbus Co., six Twin Coach urban coaches; Houston Electric Co., one 22-passenger Mack city type bus; Illinois Power Co., of Chicago, three 25-passenger Mack city type buses; Los Angeles & Salt Lake, one Type Y Yellow parlor type coach; Los Angeles Railway Corpn., four Twin Coach urban coaches; Martz Coach Co., Wilkes-Barre, 23 Model 54 White buses; Mers Wm. H., Philadelphia, five 29-passenger Mack city type buses and two 29-passenger Mack parlor cars; Milwaukee Electric Ry. & Light Co., three Twin Coach urban coaches; Muscatine Coach Lines of Davenport, eight 25-passenger Mack city type buses; Peoples Motor Coach Co., Indianapolis, five 29-passenger Mack city type buses; Portland Electric Power Co., Portland, Ore., three 40-passenger A. C. F. Metropolitan type coaches; Reading Transportation Co., ten Mack chassis equipped with special Mack observation car bodies and two 29-passenger Mack city type buses; Santa Fe Transportation Co., five Type W Yellow parlor coaches; Southern Ohio Public Service Co., Columbus, five 20-passenger Studebaker parlor car type buses and two Studebaker de luxe street car type buses; Southwestern Transportation Co., one Model 53 White motor coach, four Model 51A White trucks, five Model 58 White trucks and three Type Y Yellow coaches; Troy-Fifth Ave. Bus Co., Albany, two 29-passenger Mack city type buses; Union Pacific Stages, Inc., one Model 54 White coach, one Fageol parlor car type coach and one 29-passenger A. C. F. parlor car type coach; United Electric Railways Co., Providence, five Twin Coach suburban express coaches; White Plains-Hartsdale Bus Line Co., Inc., four 29-passenger Mack city type buses; Yonkers Bus Corpn., three 29-passenger Mack city



Silas Zwight, Gen. Mech. Supt.

VISION

Men of vision have introduced into the history of locomotive building a new era. These men have brought forth this super-mammoth locomotive designed to overcome the difficult problems which they now have and to be prepared for ever-increasing demands.

To assist in developing full efficiency with dependable and economical performance, HUNT-SPILLER AIR FURNACE GUN IRON was applied as a full installation to the Cylinder and Valve wearing parts of this locomotive.

An accomplishment of progress in Locomotive History.

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HUNT-SPILLER MFG. CORPORATION

J. G. PLATT, PRES. & GEN. MGR. V. W. ELLET, VICE-PRESIDENT

Office and Works

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type buses; Dunton Vehicle Corpn., Jamaica, N. Y., one Mack bus chassis; Inter-City Coach Lines, Inc., Atlanta, six Mack chassis; Ironbound Transportation Co., Inc., Newark, two Mack chassis; Schenectady Rapid Transit, Inc., Albany, one Mack chassis. The Pacific Gas & Electric Co., San Francisco, will buy seven 40-passenger coaches, four 29-passenger coaches and two 21-passenger coaches, for use in Sacramento. The Grand Forks Street Railway is contemplating the purchase of buses to be used as feeders; New York State Railways, Rochester, have included 15 new buses in their budget; Pittsburgh Motor Coach Co. is contemplating buying two 29-passenger buses. Tomas & Co. purchased five Mack bus chassis for use in Argentine.

Changes in Personnel

Executive & Operative

R. T. Morrow, assistant to vice president, central region of the Pennsylvania, retired April 1 after almost 52 years of railroad work. He started with the Pennsylvania as an apprentice in the Elmira shops in 1877 and advanced rapidly until, in 1907, he was appointed superintendent of the Pittsburgh division. He was promoted to assistant to the vice president in 1924. Mr. Morrow reached the age of 70 March 2.

W. R. Bennett, assistant chief engineer of the Wabash, with headquarters at St. Louis, has been appointed assistant to the president.

J. Gilardi, has been appointed superintendent of the Beaver, Meade & Englewood, with headquarters at Forgan, Okla., to succeed **E. E. Booth.**

The Southern Pacific announces the election of these new directors: **John F. Harris** of Harris Winthrop & Co., New York; **Jackson E. Reynolds,** president of the First National Bank, New York, and **Charles E. Perkins** of Burlington, Ia. These gentlemen were named to fill vacancies caused by the deaths of J. Horace Harding, Ogden Mills and Samuel Rea. **J. P. Blair,** general counsel, and **George M. Thornton,** treasurer, will succeed William Sproul and L. J. Spence respectively, on the board.

J. E. Davey, vice president, assistant secretary and assistant treasurer of the International-Great Northern, with headquarters in New York, has resigned to join the executive department of the Columbia Gas & Electric Corpn., New York.

A. H. Jones, assistant to the vice president in charge of operation of the Frisco, St. Louis, has been elected a member of the Southwestern Regional Train Service Board of Adjustment with headquarters in St. Louis. He will be succeeded by **C. C. Kratky,** chief clerk to the president. Mr. Jones has been with the Frisco since 1918.

Lucius S. Storrs, managing director of the American Electric Railway Assn.,

R. T. Morrow

has resigned to become executive chairman of the United Railways & Electric Co., Baltimore.

R. F. Spencer has been elected president of the Fredericksburg & Northern, with headquarters at San Antonio, to succeed **J. L. Browne,** resigned.

Charles T. O'Neal, vice president of the Fort Smith & Western, with headquarters at Fort Smith, has been appointed general manager in charge of operation and maintenance of the Buffalo, Rochester & Pittsburgh with headquarters at Rochester. Mr. O'Neal entered the service of the Philadelphia & Reading as a clerk in 1890. He joined the Lehigh Valley in 1891, serving in various capacities until, in 1908, he was appointed superintendent of the Buffalo division and of the Lehigh Transportation Co. He was general superintendent, assistant vice president and marine manager from 1917 to 1918. He served with the United States Railroad Administration as manager of terminals of roads running into the Niagara frontier in 1919, and in 1920 became a member of the railway board of adjustment, division of labor, United States Railroad Administration, and assistant to the director general of railroads in settlement of claims arising during federal control. Mr. O'Neal was appointed receiver of the Fort Smith & Western in 1921 and was made vice president of that road in 1923.

The Baltimore & Ohio announces that **Paul K. Partee,** terminal trainmaster at Parkersburg, W. Va., has been appointed assistant superintendent of the Baltimore division, with headquarters at Baltimore.

W. M. Gibbs, vice president and general manager of the Shreveport, Houston & Gulf, has been elected president, with headquarters at Manning, Tex. **W. B. Faris,** auditor and traffic manager, also has been elected vice president.

Financial and Legal

The Frisco announces that **G. B. Perkins,** auditor, with headquarters at St. Louis, has been appointed general auditor. **C. B. Rex,** assistant auditor at St. Louis, has been appointed assistant to the controller in charge of personnel.

H. A. Fett has been appointed auditor of capital expenditures of the Wabash, with headquarters at St. Louis,

E. M. Shelton, assistant to the general counsel of the Burlington, has been appointed assistant general counsel, with headquarters at Chicago. **J. A. Connell,** attorney, Illinois district, and tax commissioner, has been appointed general attorney and tax commissioner with headquarters at Chicago.

The Missouri Pacific has appointed **Harry R. Jones** commerce attorney with headquarters at Houston.

The Canadian Pacific announces that **William H. Curle,** general solicitor at Montreal, has been named general counsel at that point. **Edward P. Flintoft,** assistant general solicitor at Montreal, will succeed Mr. Curle. Mr. Curle

RUTS—HOLES—BROKEN-OUT PLACES

in Concrete Floors and on Station Platforms and how they affect Men, Merchandise, Trucking Efficiency and Equipment

Because of the lack of knowledge of quick and efficient floor-repair methods, tremendous sums are paid out by railroads in damages caused by upsetting of trucks and subsequent breakage of merchandise.

Old fashioned methods for repairing ruts, holes and broken-out places, and resurfacing entire areas, were not only unsatisfactory, but required much preliminary preparation, and were so great a problem that concrete floors were permitted to remain in use until it was necessary to install a new floor.

STONHARD RESURFACER

has economically and satisfactorily overcome this problem in numerous railroads, such as, The Pennsylvania System, New York Central Railroad Co., New York, New Haven and Hartford Railroad Co., Chicago and Northwestern Railway Co., The Wabash Railway Co., and Chicago, Burlington and Quincy Railroad Co.

Send for our booklet, "Over the Rough Spots." It's free, and tells about America's Most Popular Floor Repair and Resurfacing Material.

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TRUE ECONOMY

Can be Secured in Steam Locomotives

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ECONOMY BAFFLE WALLS

THEY INSURE MAXIMUM LIFE OF BRICK WITH A MINIMUM WEIGHT ON THE ARCH TUBES

THE ECONOMY METHOD of SUPPORTING SIDE BRICK on TRUNNIONS ELECTRICALLY WELDED to the SIDE SHEET ELIMINATES the liability of the side brick dropping into the fire bed and the necessity of straightening or replacing bent arch tubes.

THE ECONOMY METHOD provides radiant heat near the side sheets, causing more complete combustion in this "COLD" area. It also PREVENTS the accumulation of coke and slag in the "pockets" resulting when inclined side brick are used, thus increasing the active firebox heating surface.

ECONOMY ARCH COMPANY

1843 RAILWAY EXCHANGE BUILDING ST. LOUIS, MISSOURI

Distributors of Locomotive Arch Brick Manufactured by

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CONLEY

Solid Manganese
Self Guarded

SPRING FROGS

SHOWING SPRING FROG IN SERVICE

Are giving excellent service under severe traffic conditions on Railroads using them.

Twenty years successful service by CONLEY TYPE FROGS have demonstrated their merit for safe and economical service.

CONLEY FROG & SWITCH CO.

Memphis, Tenn.

was appointed solicitor in 1908 and general solicitor in 1917. Mr. Flintoft entered the service of the Canadian Pa-

Blank-Stoller, Inc

W. L. Kinter

cific as assistant to the solicitor in 1908, was appointed assistant solicitor in 1914, and assistant general solicitor at Montreal in 1917.

William L. Kinter, general solicitor of the Reading, with headquarters at Philadelphia, has been appointed general counsel to succeed **Charles Heebner,** who retired March 1. Mr. Heebner had been with the Reading for 40 years, having become assistant general solicitor in 1889. He was named general solicitor in 1910 and general counsel in 1918. Mr. Kinter entered the service of the Reading as counsel, January 1, 1910. A year later he was appointed assistant general solicitor and on July 1, 1918, was named general solicitor. **William Clarke Mason,** assistant general solicitor, has been appointed general attorney. **William I. Woodcock, Jr.,** assistant general solicitor has been appointed general solicitor. **C. T. Wolfe,** claims attorney, has been appointed assistant general solicitor. **H. Merle Mulloy** has been appointed counsel.

William T. Faricy, general attorney of the Omaha at St. Paul, has been appointed general solicitor to succeed **Richard L. Kennedy** who retired March 1.

E. J. Gibbs has been elected treasurer of the Shreveport, Houston, & Gulf, with headquarters at Manning, Tex. to succeed **W. W. Kelley.**

The Pittsburgh & Lake Erie announces that **W. F. Brunner,** assistant to the vice president and assistant secretary, with headquarters at Pittsburgh, has been named real estate and tax agent.

Purchases and Stores

The Big Four announces that **J. L. Nichols** has been named stationery storekeeper at Beech Grove, Ind. to succeed **W. A. Saffell.**

J. C. Hart, chief clerk in the office of the division storekeeper of the Milwaukee, has been appointed division storekeeper of the Iowa and Dakota and the Southern Minnesota divisions, with headquarters at Mason City, Ia. **H. L. Stamp,** storekeeper at Harlowton, Mont., has been appointed division storekeeper at Mobridge, S. D., to succeed **F. J. Kratschmer,** resigned. **E. F. Grisius** has been appointed division storekeeper of the Sioux City and Dakota division, at Sioux City, to succeed **G. F. Lake** resigned.

The Kansas City Southern announces that **R. T. Huson,** roadmaster at Leesville, La., has been appointed tie and timber agent, with headquarters at Kansas City, to succeed **I. V. Bowden,** deceased.

C. M. Darden, mechanical engineer of

—Blank-Stoller, Inc.

Charles Heebner

the Nashville, Chattanooga & St. Louis, with headquarters at Nashville, has been appointed assistant superintendent of machinery, with headquarters at the same point.

S. R. Mauldin, master mechanic on the Illinois Central at Clinton, Ill. has been transfered to Jackson, Tenn., succeeding **Lloyd Grimes,** deceased.

Traffic

P. J. Flynn, vice president in charge of traffic for the Lackawanna, with

COMPETITION

ARE two railroads better than one? Is unlimited competition more important to the public than the building of a strong, financially sound transportation structure?

Mr. C. D. Morris, assistant to the chairman of the Western Railways Committee on Public Relations, addressing the Down Town Association of San Francisco, March 21, said:

"There is a mistaken idea among some that what a community needs is competition between railroad companies. It is difficult to understand this conception of our needs. In a country like ours, where the railroads are completely regulated and controlled by the Government, a community is as adequately served by one railroad, providing its facilities are modern, adequate and up-to-date, as it could possibly be by a half dozen.

"To build additional lines when they are not necessary to handle the traffic of a community only adds to the expense of caring for the traffic needs of the community and is reflected in a loss of earning power on the part of the railroad the community already has, and leads ultimately to the impairment of service. The one thing above all others that has enabled American Railroads to keep out of the bankruptcy courts in the past decade has been the elimination of waste through the more intense use of the facilities at their command."

Duplication of railway service by construction of unnecessary new lines is an added financial burden which eventually must be borne by the shipper and the public.

SOUTHERN PACIFIC

JORDAN SPREADER
"Does the Work of an Army of Men"
SNOW PLOW ★ ICE CUTTER ★ DITCHER
UNIVERSALLY STANDARD
O.F. JORDAN COMPANY
WALTER J. RILEY, PRESIDENT
EAST CHICAGO, INDIANA

JORDAN
SPREADER - DITCHER

Indispensable in mines, on railways, public works, industrial plants, etc.

Built in Standard and Narrow Gauge Sizes

headquarters at New York, retired April 15. Mr. Flynn was born at Granville, N. Y. and entered railroad service in 1870 on the Philadelphia & Reading. After holding various positions on eastern roads he went west, and was with the Santa Fe until 1889 when he became general western freight and passenger agent of the Missouri Pacific at Denver. Mr. Flynn became general

W. W. Hale

freight agent of the Lackawanna in 1899, freight traffic manager in 1903 and vice president in charge of traffic in 1911. His home is in Orange, N. J. **Nat Duke,** general freight traffic manager at New York, will succeed Mr. Flynn as vice president; **J. J. Byrne,** freight traffic manager will succeed Mr. Duke; **Charles F. McTague,** assistant freight traffic manager will succeed Mr. Byrne; **Albert B. Wallace,** general freight agent, will succeed Mr. McTague; **Maurice Williams,** assistant general freight agent at New York, will succeed Mr. Wallace, and **George Herbert,** representative of the general freight traffic manager in the general freight traffic department, New York, will succeed Mr. Williams.

W. W. Hale, general agent for the Southern Pacific at Detroit, has been appointed assistant to the freight traffic manager, with headquarters at San Francisco. Mr. Hale will be succeeded at Detroit by **L. H. Trimble,** general agent in charge of perishable freight traffic at San Francisco. Mr. Hale has been with the S. P. since 1901 when he went to work as a clerk in the general passenger offices in San Francisco. He was transferred to the office of the superintendent of transportation in 1904, and in 1917 was appointed eastern car service agent at Chicago. During federal control of railroads he served with the United States Railroad Administration. He was made general agent for the Southern Pacific at Detroit in 1920. Mr. Trimble became general agent in charge of perishable freight traffic in 1927, going to San Francisco from Los Angeles where he was special representative of the traffic department. He was with the El Paso & Southwestern for 14 years before those lines were consolidated with the Southern Pacific in 1924.

W. C. Glynn, freight traffic manager, eastern region, of the Pennsylvania, has been appointed to the newly created position of assistant to the general traffic manager, with headquarters at Philadelphia. **E. S. Neilson,** general foreign freight agent at Philadelphia will succeed Mr. Glynn as freight traffic manager. **A. J. Ball,** general freight agent at Philadelphia, has been appointed to the newly created position of foreign traffic manager at Philadelphia. **V. P. Summerfield,** general freight agent at Philadelphia, has been appointed assistant freight traffic manager, Philadelphia. He will be succeeded by **William McL. Pomeroy,** general freight agent at Pittsburgh.

The Missouri Pacific announces that **C. H. Pugh,** assistant general freight agent at Houston, has been appointed general freight agent there.

P. J. McCarthy, assistant general freight agent of the Missouri Pacific at St. Louis, has been appointed general freight agent there succeeding **William H. Thompson,** deceased. **H. E. Cunham** has been named to succeed Mr. McCarthy. **H. M. Johnson,** assistant foreign freight agent has been appointed foreign freight agent with headquarters as before at St. Louis.

D. M. Bowman, general passenger agent of the Big Four, with headquarters at Cincinnati, has been appointed passenger traffic manager at the same point. **Herbert Bertermann,** assistant general passenger agent at Cincinnati, has been appointed general passenger agent.

C. N. Richards, chief of the tariff bureau of the Wabash at St. Louis, has been appointed assistant general freight agent at St. Louis to succeed **W. E. Mattox,** who has been granted a leave of absence because of illness. **L. W. Cole,** assistant chief of the tariff bureau has been named to succeed Mr. Richards as chief.

S. R. Carson has been appointed general agent of the Atlanta, Birmingham & Coast, at Birmingham, to succeed **L. G. Scarboro,** resigned.

W. H. Chisholm has been appointed European traffic manager of the Central of Georgia, with headquarters in London, to suceed Donald Rose, deceased.

C. F. Goldthwaite, assistant director of publicity of the Canadian National, has been appointed manager of the advertising department with headquarters as before at Montreal.

O. D. Chalmers has been appointed manager of mail and express traffic of the Frisco, with headquarters at St. Louis.

Civil

S. N. Crowe, division engineer of the western division of the Wabash, with headquarters at Moberly, Mo., has been appointed assistant chief engineer, western district, with headquarters at St. Louis. **O. A. Lewis,** assistant engineer at Moberly has been appointed division engineer there to succeed Mr. Crowe.

E. E. Booth, superintendent of the Beaver, Meade & Englewood, has been appointed superintendent bridges, buildings and construction, with headquarters at Forgan, Okla.

C. O. Long, supervisor of track, New

L. H. Trimble

York zone of the Pennsylvania, at Trenton, N. J., has been appointed assistant division engineer of the Fort Wayne division, with headquarters at Fort Wayne, Ind. **F. R. Rex,** supervisor of the eastern division of the central region, with headquarters at Alliance, O., has been appointed division engineer of the Sunbury division.

H. B. Christianson, division engineer of the Milwaukee at Sioux City, has been transferred to Marion, Ia., to succeed **E. L. Sinclair,** deceased. **H. C. Munson,** office engineer of eastern lines at Chicago will succeed Mr. Christianson. **L. D. Hadwen** succeeds Mr. Munson.

W. F. Bucknell has been appointed supervisor of bridges, lines west, of the Burlington, with headquarters at Lincoln, Neb., to succeed **E. M. Anderson,** deceased.

A. B. Hillman, trainmaster on the belt Railway of Chicago, at Clearing, Ill., has been appointed assistant engineer, with headquarters at Chicago.

Obituary

A. Moritz, for the past ten years superintendent of transportation of the Atlanta & West Point, the Western of Alabama and the Georgia, died March 30 of a heart attack at his home in Atlanta. He was 58 years of age. Mr. Moritz had been with the Atlanta & West Point for more than 25 years.

George J. Mohler, traveling agricultural agent of the Union Pacific, with headquarters in Spokane, died April 6 at Santa Monica of a heart attack, aged 70. Mr. Mohler was a brother of A. L. Mohler, president of the Union Pacific from 1911 to 1916.

William Walker, who retired from active service as superintendent of shops of the Katy at Sedalia, January 1, died at his home there on March 19.

Tyson S. Dines, aged 71, counsel for the Colorado & Southern, died March 28, at Denver. Mr. Dines was general counsel for several lines in St. Louis, among them the Belt Line and the Merchants Terminal, before going to Denver.

T. H. Yorke, master mechanic of the third division of the Oregon-Washington Railroad & Navigation Co., with headquarters at Spokane, died at his home there February 24.

W. R. Stubbs, governor of Kansas from 1909 to 1913, died at Topeka, March 25, after an extended illness, aged 70. At one time he was one of the prominent railroad grading contractors of the West. One of his largest jobs was that of building the right of way for the Rock Island from St. Louis to Kansas City, the contract amounting to more than $3,000,000.

St. Dennis J. DeBlanc, assistant secretary and assistant treasurer of the Southern Pacific in Texas & Louisiana, with headquarters at New Orleans, died there March 3, from a heart attack, aged 50.

Lewis J. Merritt, discoverer and developer of the Missabe Iron Range of Minnesota, died March 21 at his home in Pasadena, Cal. He was 81 years old. With his brothers and his son he financed and built the Duluth, Missabe & Northern.

Samuel Rea, former president of the Pennsylvania died March 24 at his home near Philadelphia of a heart attack which was the result of influenza. He was 73 years of age. Mr. Rea retired as president of the Pennsylvania when he reached his seventieth year in September, 1925.

Supply Trade Notes

The American Steel Foundries, Chicago, announces these appointments: **R. H. Ripley,** second vice president, has been appointed senior vice president; **J. C. Davis,** fourth vice president in charge of operations, has been appointed advisory vice president of operations; **A. W. Walcher,** assistant to the fourth vice president has been named to succeed Mr. Davis; **F. A. Lorenze, Jr.,** works manager at Indiana Harbor, Ind., has been appointed assistant to the vice president in charge of operations; **F. B. Ernst,** assistant to the first vice president, has been appointed vice president,

'RALSTON BUILT'

Steel and Composite Cars

Completely rebuilding large numbers of steel cars in record time is an achievement that Ralston Steel Car Company has repeated time and time again.

This is possible only through our excellent facilities and well-balanced program, which, together with skilled workmen and competent engineers, keep the cars moving through the plant on regular schedule.

THE RALSTON PLANT is equipped to build New Cars, to Rebuild Old Cars, to Repair and to supply repair parts. All materials and work of the highest QUALITY and performed under expert Engineering Supervision.

RALSTON STEEL CAR CO.
COLUMBUS, OHIO

A trip to California

is not complete unless you go at least one way through the Feather River Canyon, the route of the **Scenic Limited.** For descriptive literature and complete information write:

BODE K. SMITH
Passenger Traffic Manager
Mills Building
San Francisco, Calif.

WESTERN PACIFIC
THE FEATHER RIVER ROUTE

sales department; **H. D. Hammond,** manager, miscellaneous sales department, has been appointed vice president in charge of miscellaneous sales, and **G. F. Slaughter,** representative, has been appointed vice president sales department.

The Ewald Iron Co., Louisville, announces that **W. R. Walsh,** representative in Chicago for the past three years, has been appointed resident sales manager, with headquarters as before in the Railway Exchange building.

George E. Howard, vice president and sales manager of the **Commonwealth Steel Co.,** Granite City, Ill., has resigned as sales manager but will continue as vice president and a director. **Harrison Hoblitzelle,** vice president in charge of purchases, has been appointed vice president and manager of sales.

Joseph M. Hall, formerly assistant to the president of the Universal Draft Gear Attachment Co., has been appointed mechanical engineer of the **Union Draft Gear Co.,** with headquarters at Chicago.

William R. Seigle, who has been elected chairman of the board of directors of the **Johns-Manville Corpn.,** has been with that company since his graduation from college in 1900. The company was then the H. W. Jones Mfg. Co. Mr. Seigle was born at Easton, Pa., in 1879. He was technically trained in mechanical and electrical engineering and electro-chemistry, and his research work along those lines has been responsible for the development of many of the insulating, electrical and building materials upon which the company has based its success. Mr. Seigle spends much of his time in his completely equipped private laboratory at his home in Mamaroneck, N. Y., where he employs a staff of chemists.

Lewis H. Brown, who has been elected president of **Johns-Manville Corpn.,** was born in Creston, Ia., in 1894. He is a graduate of the University of Iowa, where he studied liberal arts and law, becoming, after graduation, assistant to the sales manager of a manufacturing company in Indiana. During the war he served as a captain of infantry in the 84th division and was attached as a staff officer at A. E. F. headquarters in France. After the war he joined Montgomery Ward & Co., serving in various positions including office manager, superintendent of merchandise and assistant general operating manager of plants. When Mr. Merseles became president of Johns-Manville in 1927, Mr. Brown accompanied him as assistant, which position he held until his recent appointment.

The United Engineers & Constructors, Inc., Philadelphia, announces the formation of the **United Engineers & Constructors (Canada) Ltd.,** with headquarters in the Drummond building, Montreal. **R. M. Henderson** has been appointed managing director.

The S. K. F. Industries, Inc., New York, announces these changes in offices: The Buffalo office has been moved from 571 Manufacturers & Traders building to Main and Genesee streets; Detroit, from 6520 Cass avenue to 2820 East Grand boulevard, and San Francisco, from 115 New Montgomery street to 221 Eleventh street.

George H. Houston, has been elected president of the **Baldwin Locomotive Works** to succeed **Samuel M. Vauclain,** who has been elected chairman of the board. **Thomas S. Gates** has been elected chairman of the executive committee. As chairman of the board, Mr. Vauclain will continue to participate actively in the affairs of the company.

The **Schaefer Equipment Co.,** announces the removal of its general offices from the Oliver building to the Koppers building, Pittsburgh.

SPECIALISTS IN FORGED

Center Plates
Draw Bar Yokes
Knuckle Pins
Air Brake Pins
Brake Jaws
Journal Box Wedges
and
Miscellaneous Forgings

Send us your specifications

Steel Car Forge Company

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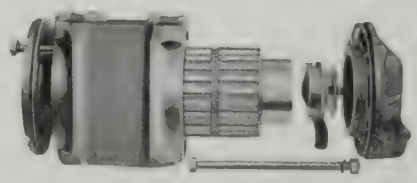

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RAILWAY ROLLER JOURNAL BEARING
More than 450 Melcher equipped cars in Railway service.
RAILWAY MOTORS CORPORATION
DE PERE, WISCONSIN

In the Grand Central Section
HOTEL
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Lexington Ave.
49th to 50th St.
New York's newest and finest Hotel
800 Rooms 800 Baths
Radio in Every Room
3 minutes' walk from Grand Central, Times Square, Fifth Avenue Shops and most important commercial centers, leading shops and theatres. 10 minutes to Penn. Station.
Grand Central Palace only 2 short blocks away
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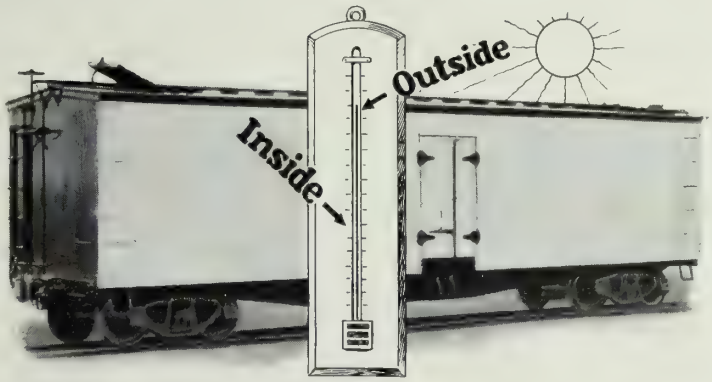
Room & Bath
Tub and Shower
$3 to $5
per day
For 2 Persons
$4 to $6
per day

Keep **HEAT** *and* **COLD** where they belong with Balsam-Wool *Refrigerator Car Insulation*

Here are *facts* which should be known by every man who has anything to do with specifying insulation for refrigerator cars:



Balsam-Wool is *easily applied* by standard methods.

Balsam-Wool is *durable*—low maintenance costs.

Balsam-Wool *saves* 1000 to 2500 pounds of dead weight per car.

Balsam-Wool is *efficient*—92% "still" air assures that.

Balsam-Wool is *flexible* and *elastic*—20% stretch withstands vibration and strain of rough handling or poor track.

Balsam-Wool is *windproof* and *waterproof*—liners are unstitched.

Balsam-Wool gives most insulation per dollar.

You can get Balsam-Wool in any width up to 9 feet. Write for samples and complete information.

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Insulation Division of Weyerhaeuser Forest Products

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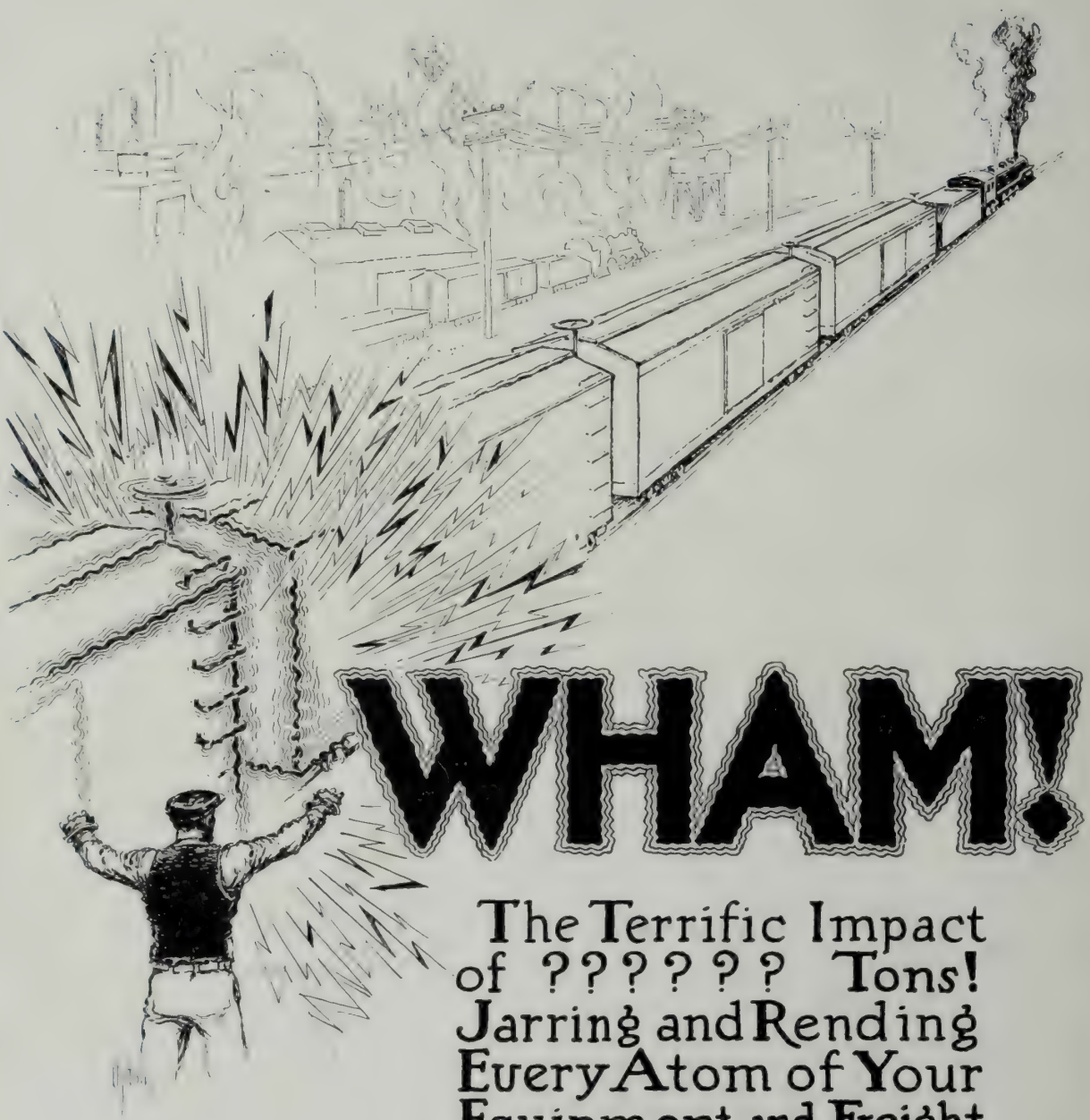

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STANDARD COUPLER CO.

New York Chicago.

Transportation

The National Monthly of the Transportation Industry

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Vol. IV May 1929 No. 5

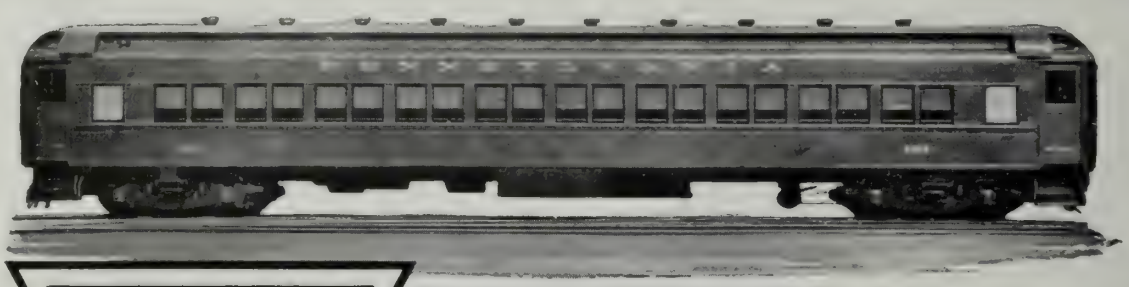
Suburban Cars, Main Line Coaches Diners and Gas Electrics

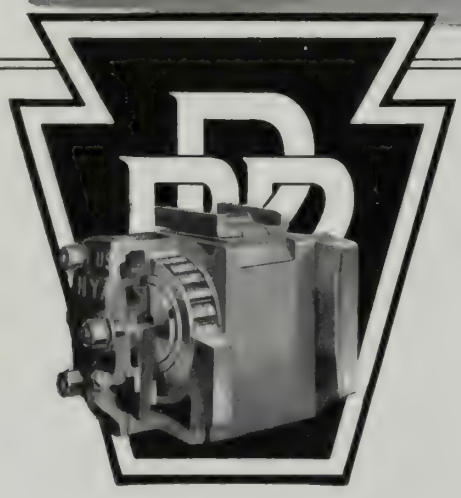
PROMINENT among the more than sixty-five American and Canadian railroads using journal boxes equipped with Hyatt Bearings, is included the Pennsylvania.

The Pennsylvania has close on to 200 suburban, main line, dining, and gas electric cars equipped with Hyatt journal boxes.

These Hyattized cars, along with other anti-friction bearing equipped cars now in service, make the Pennsylvania Railroad the largest user of roller bearing passenger cars in the world.

The tendency toward placing equipment on an anti-friction bearing basis has reached the point of standardization by several roads.





And here is where Hyatt Roller Bearings have a decided advantage, for due to the fact that Hyatt journal boxes are applicable to trucks which conform with A.R.A. standards, they can be used for changeover on existing equipment just as easily as they are applied to new cars, for no new truck parts or axles are required.

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No wonder Hyatt Roller Bearings are so overwhelmingly popular among railroad men—they are so ideally suited in every way for this gruelling service.

HYATT ROLLER BEARING COMPANY
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PRODUCT OF GENERAL MOTORS

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we have been supplying car and lading protection to leading railways.

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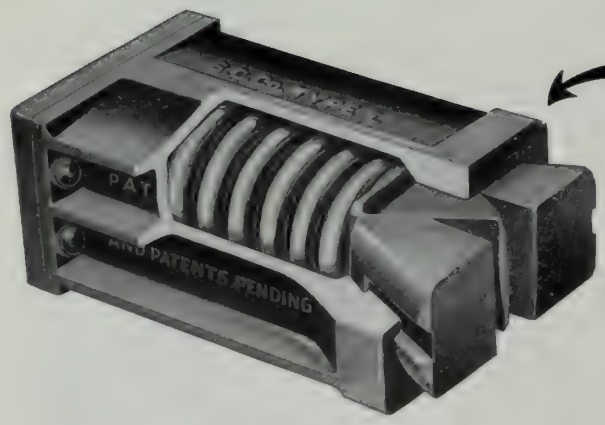

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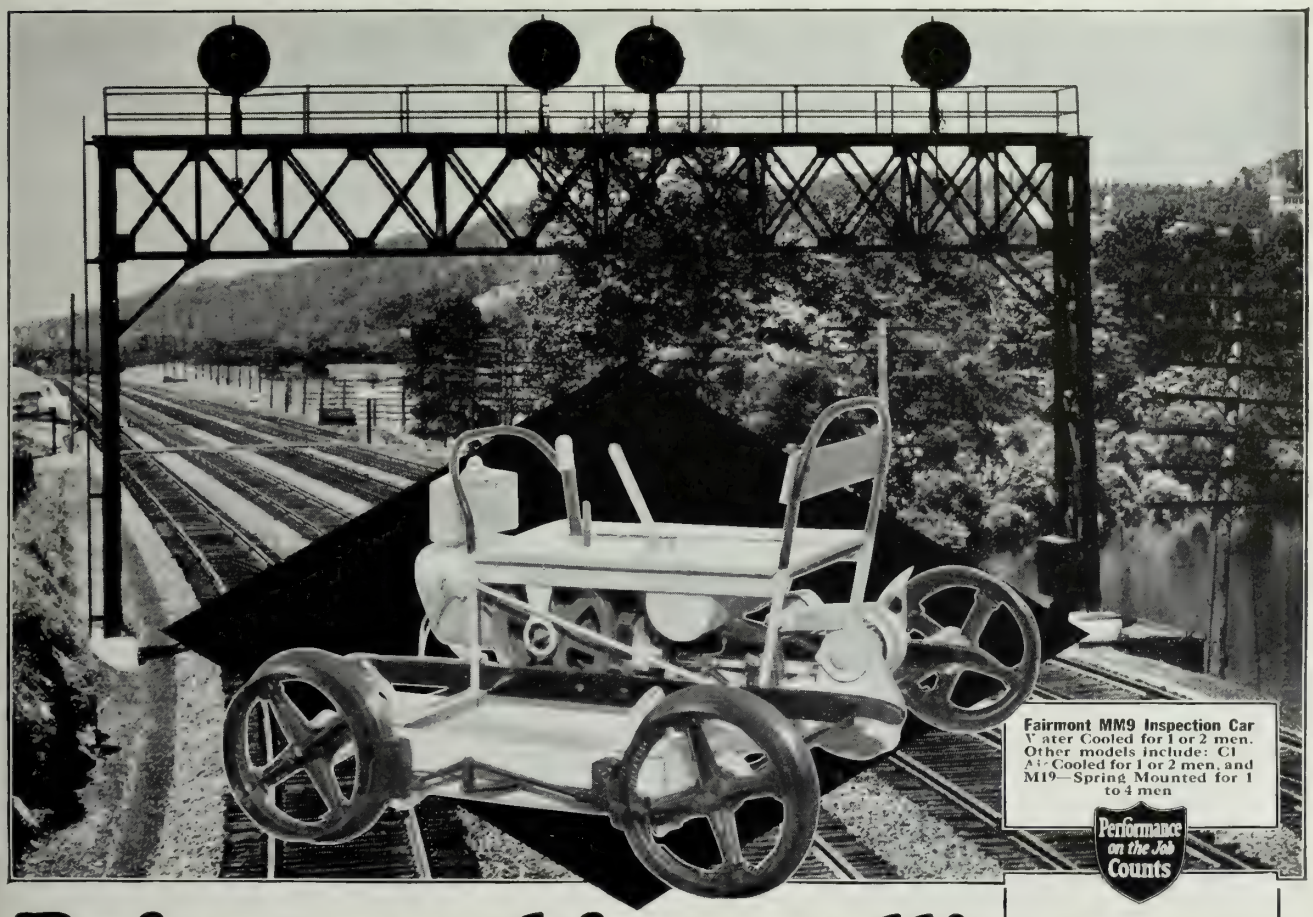

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Transportation

(Reg. U. S. Patent Office)

The National Monthly of the Transportation Industry

MAY, 1929

VOLUME FOUR NUMBER FIVE

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Joining the rails of the Central Pacific-Union Pacific at Promontory, Utah, May 10, 1869

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SANTA FE AIR-RAIL SERVICE, JULY FIRST, *H. W. Winfield*

LITTLE STORIES ABOUT BIG MEN

THE NEWS OF THE MONTH

PUBLISHED BY

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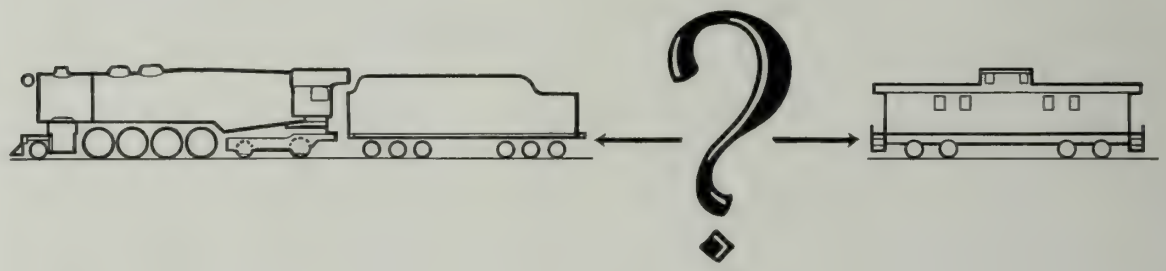
The Load Between the Engine and Caboose

Determines

The Earning Capacity of Your Railroad



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So, drill, ye tarriers, drill.
Drill, ye tarriers, drill.
For it's work all day,
No sugar in yer tay,
When ye're workin' on the U. P.
Ra-al-way.

It Was Sixty Years Ago

By Erle Heath

SIXTY YEARS ago, on May 10, 1869, a few hundred frontiersmen and pioneer railroad builders celebrated at a place, now almost deserted, in northern Utah, an event that marked a turning point in the unity and development of this nation. The last rail was laid that day and the last spike driven connecting the tracks of the Union Pacific and Central Pacific companies in the first great transcontinental railroad.

For six years a valiant army, at times numbering 25,000 men, had been at work on the railroad, Irishmen building west and Chinamen building east. From Omaha on the Missouri River to Sacramento in California, the first national roadway for the "iron horse" was laid, 1776 miles across barren plains and over rugged mountains in the face of economic and physical difficulties that would have discouraged all but the most courageous of men.

Without aid of the powerful implements so common to modern construction, those Irish terriers of the Union Pacific and Chinese coolies of the Central Pacific, working with pick and shovel, black powder and one-horse dump-carts set records in railroad construction that have never been equaled.

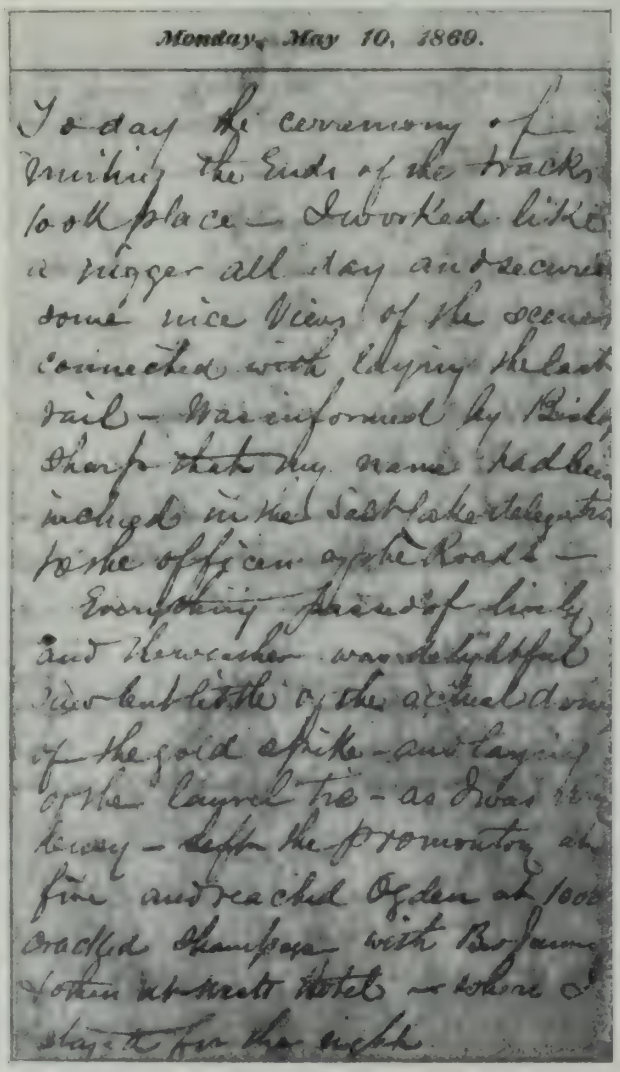
No other railroad construction is so rich in history and romance. No other large railroad was built as a military necessity as it was considered at the time. No other was built

through country infested by hostile Indian tribes, where the men had to be soldiers and builders, too. No other road was built so speedily despite tremendous obstacles. And no other will go down in history as comparable with the building of the Panama Canal or the laying of the Atlantic Cable.

The tenth of May dawned beautiful and clear, a fitting day on which to celebrate the completion of such a stupendous undertaking. The point of junction was at Promontory, Utah, in a level, circular valley about three miles in diameter. During the morning hours the hurry and bustle of preparation went on. A distance of about 60 feet, two rail lengths, separated the tracks of the two companies. At a little before 11 o'clock the Chinese laborers began leveling the road bed for the last ties. At a quarter past eleven a special train arrived from the West bringing Governor Leland Stanford, president of the Central Pacific, and a party of his friends. The Pacific Coast men joined the group of Union Pacific officers, including Thomas C. Durant, vice president; Sidney Dillon, a director of the company who, from the start, had taken a prominent part in the building of the road; John R. Duff, another director; Silas A. Seymour, consulting engineer, and Major-General G. M. Dodge, chief engineer. A number of visitors also had come from Salt Lake City.

The Central Pacific people made elaborate preparations for this ceremony. The event did not impress the officers of the Union Pacific so deeply. They had never been separated from the East and did not feel the joy of the westerners, now that their isolation from the remainder of the country was nearly at an end. Governor Stanford and his party came with spikes made of precious metals, a silver plated hammer and shovel, and a highly polished California laurel tie.

Special arrangements were made so that the entire country would know the minute the last spike was driven. This was done by telegraph connection between Promontory and all the large cities of the nation. One telegraph wire was connected to the spike and another wire to the hammer. Contact of the hammer with the spike closed the circuit and the click went out over the telegraph wires. The man who made this telegraph connection, Amos L. Bowsher, a Southern Pacific pensioner, is still living in Sacramento.


Monday, May 10, 1869.

To-day the ceremony of
uniting the Ends of the tracks
took place — I worked like
a nigger all day and secured
some nice views of the scenes
connected with laying the last
rail — Was informed by Billy
Sharp that my name had been
included in the Salt Lake telegram
to the officers of the Road —
Everything passed off lively
and the weather was delightful
Did not hear of the actual doing
of the gold spike — and laying
of the laurel tie — as I was ter-
ribly — left the Promontory at
five and reached Ogden at 10.00
cracked Champagne with Benjamin
Cohen at Street Hotel — where I
stay to-for the night

A Leaf From the Diary of Charles Savage, Official Photographer for the Union Pacific During Construction of the Transcontinental Railroad.

When the last rails were in place the Union Pacific locomotive No. 119 and the Central Pacific "Jupiter" were moved up to within 60 feet of each other, and the crowd of 500 or 600 persons assembled between the two engines. Four companies of the 21st Infantry and the headquarters band from Fort Douglas, Utah, under command of Major Milton Cogswell, stood in ranks on the north side of the track. A few words were spoken by Governor Stanford and General Dodge. It was now about 12 o'clock noon, local time. The two superintendents of construction, J. H. Strobridge of the Central Pacific and S. B. Reed of the Union Pacific, placed the California laurel tie under the rails.

When everything was in readiness, the word was given and "Hats Off" went over the wire to the waiting crowds at New York, Philadelphia, San Francisco and other principal cities. Prayer was offered by Dr. Todd of Pittsfield, Mass., at the conclusion of which the operator at Promontory tapped out: "We have done praying, the spike is about to be presented."

Four spikes, handed alternately to Governor Stanford and Mr. Durant, were placed in holes drilled for them in the laurel tie. Dr. Harkness presented a gold spike from California; General Safford, on behalf of Arizona, presented a spike composed of iron, gold and silver, and Mr. Tuttle presented Nevada's silver spike. A silver maul was presented to Governor Stanford by Mr. Coe of the Pacific Union Express. The gold spike and silver maul are now in the museum at Stanford University, California.

With this part of the ceremony concluded the operator at Promontory sent out the message: "All ready now. The spike will soon be driven." The signal will be three dots for beginning the blows." An instant later Governor Stanford took the hammer which had been especially prepared, and tapped lightly on a spike which had been partly driven into the tie. Every tap of the hammer sent a signal over the country that the great railroad project was completed. The signal "Done" was received at Washington at 2:47 p.m., which was about a quarter of one at Promontory.

There was not much formality in the demonstration that followed, but the enthusaism was genuine and unmistakable. The two engines were moved up until they touched each other, and a bottle of champagne was poured on the pilots after the manner of christening a ship. A telegram

was sent to President Grant saying: "The last rail is laid; the last spike driven. The Pacific Railroad is completed. The point of junction is 1086 miles west of the Missouri River and 690 miles east of Sacramento City."

Two days later the first through train from Omaha to Sacramento passed over the new road, and on May 15 through trains began running regularly. One train was run each way daily. Before long the Atlantic Hotel Express went into service, leaving every Wednesday from the eastern and western terminals. From San Francisco boat connection was made with the railroad at Sacramento. The first daily trains reached Omaha in four days and four hours, Chicago in five days and six hours, and New York in seven days. There was no through equipment. Passengers had to change at Promontory from Pullman cars of the Union Pacific to Silver Palace sleeping cars of the Central Pacific. Meals were taken at eating houses along the way.

The Joining of the Rails At Promontory, Utah, May 10, 1869. Union Pacific Engine 119, Straight Stack; Central Pacific Engine Jupiter, Flaring Stack, Wood-Burner.

"It is not too much to say," wrote Sidney Dillon, some years later, "that the opening of the Pacific Road, viewed simply in its relation to the spread of population, development of resources and actual advancement of civilization, was an event to be ranked, in far-reaching results, with the landing of the Pilgrims, or perhaps the voyage of Columbus."

Yet at the time the road was completed many leaders of business and politics in the East regarded the railroad more as a quicker means of reaching the rich products of the Orient than as an agent in developing the vast resources of the Pacific Coast states. Such opinion was not held by men of the Pacific Coast. The building of a railroad or "roadway" across the continent had been a subject attracting the attention of visionary men for more than 40 years before President Lincoln signed the Pacific Railroad Bill on July 1, 1862. This bill authorized the Union Pacific and Central Pacific companies to proceed with the work, and gave much needed aid in the loan of government bonds, and public land, most of which land had no value before the railroad was built.

When the Iron Horse of the West Met A Covered Wagon Train of Emigrants From the East, Near Promontory, May 10, 1869. An Epoch in Transportation.

As far back as 1819, Robert Mills of Virginia urged the necessity of a cross-country railway. He suggested the use of "land steamers" or "steam-propelled carriages." Then in February, 1832, the editor of the "Weekly Emigrant", an Ann Arbor, Mich., newspaper, advocated the building of a railroad from the Great Lakes to the Pacific Ocean. There was less than 100 miles of railroad in the country at that time.

John Plumbe called a meeting in 1836 at his home in Dubuque, Iowa, to discuss privately the building of a railroad to the Pacific. As a result of this meeting there was held on March 31, 1838, the first public meeting to discuss "The Pacific Railroad Project". Plumbe appealed to congress for financial aid, but got little

encouragement. He was too far ahead of his time. Then came Asa Whitney, Josiah Perham, Dr. Hartwell Carver and P. P. F. Degrand with plans that were, in most part, filled more with glowing optimism than with financial and engineering practicality. United States Senator Thomas Benton, son-in-law of John C. Fremont, the famous "Pathfinder", also had a plan, not for a railroad, but for "a plain old English road, such as we have been accustomed to all our lives, on which the farmer may travel on horse or on foot, without fear and without tax, with none to run over him or make him jump out of the way."

Medal Struck By U. S. Mint Commemorating Driving of the Golden Spike.

People on the Pacific Coast were eager for a faster mode of travel to the East, which was then "back home" to most of them. Discovery of gold had attracted the attention of the world to this western region. The hazardous trip across the plains in covered wagons pulled by slowly plodding oxen or mules, and the tedious ocean voyage of weeks' duration via Panama or around Cape Horn, brought to these early settlers a realization of the isolation from the remainder of the country.

In 1850 the California legislature passed a resolution urging on congress the need for a national railroad. At every succeeding session the legislators continued to press the railroad question in congress, and in October, 1859, a railroad convention was held in San Francisco.

This agitation from the East and West aroused public interest and congressmen turned their attention seriously to the possibilities of constructing such a railroad. Various reasons were popularly urged. The irritating Indian question needed solution, for one thing. A railroad across the prairies, then uninhabited save by hostile tribes of Indians, would simplify getting soldiers and military supplies to forts in what was then the Wild West. The railroad might also prove a civilizing agency for the savages who roamed the plains. A road to the Pacific Ocean would bring the Orient closer. Gold had been discovered in California; Oregon beckoned to settlers, and it was feared that the American communities on the western coast might set up an independent government unless closer contact was established.

The first practical railroad measure was the bill introduced in congress by Senator S. P. Chase in 1853 making appropriation for the exploration of different routes from the Mississippi and Missouri rivers westward. These surveys were made by five parties of army engineers who covered the country between the thirty-second and forty-ninth parallels of latitude.

In the conventions of 1856 both politicals parties expressed themselves as favoring the Pacific Railroad. On his election President Buchanan advocated its construction but congressmen of the North and South could not agree on its location. A bill passed the house in December, 1860, but failed to become a law. Result of the presidential election of that year brought the question of secession before the statesmen and in a few months the Civil War was on.

With the southern representatives out of congress the way was cleared for definite decision on a route for the railroad, the construction of which was now urged all the more strenuously as a military necessity, and as a means of holding the Pacific Coast to the Union. Lincoln favored its construction by private enterprise with government aid. His signature to the act in July, 1862, started the great project in motion.

Building of the railroad brought to the attention of the nation several men whose farsightedness, ability and leadership has placed their names high among men of great achievements. The westerner who did most effective work in prompting the Pacific Railroad was Theodore D. Judah, a young engineer, who had gone to California in 1854 at the age of 28 as chief engineer for the Sacramento Valley Railroad, pioneer road of the West. He became obsessed with the idea of a railroad across the continent and spent much time exploring routes over the Sierra Ne-

This Was the Nifty Coach Used by Governor Stanford When He Went to Promontory to Attend the Ceremony of Joining the Rails From East and West.

vada Mountains. His engineering knowledge and enthusiasm made him the ideal man to represent the West. He was sent on several trips to Washington and was there to see the bill finally signed by President Lincoln. He did more than any other man in getting government authorization for the project. Yet he lived only long enough to see ground broken for his railroad dream. He died on November 2, 1863, while still a young man.

The principal men at the head of the Central Pacific Railroad Company, which built the western end of the transcontinental railroad, were: Leland Stanford, Collis P. Huntington, Charles Crocker and Mark Hopkins, who became famous as the "Big Four". These Sacramento merchants were won over to the railroad idea through the convincing arguments of Judah. Although they had no engineering experience and little knowledge of such a venture as building a railroad each man had developed individual qualities that combined to make a rare team. Above all they possessed the courage and determination that was needed to launch and carry through such a herculean project. Stanford was chosen president of the company. Crocker was general superintendent in charge of construction and operation. Hopkins became treasurer and judiciously handled the finances obtained through the efforts of Huntington, who was chosen vice president.

Following Judah's death, S. S. Montague became chief engineer for the Central Pacific. Arthur Brown was in charge of the teams and of building bridges. Joseph M. Graham, one of the engineers on location and construction, still lives in Berkeley, Cal.

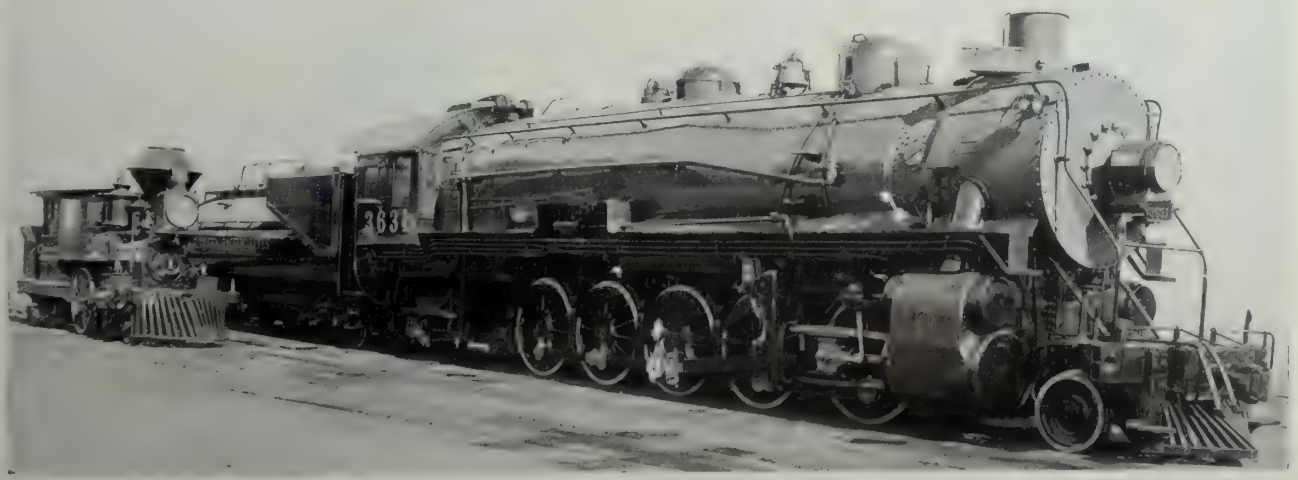
Union Pacific Engine 119, Coal Burner, Which Took Part in the Ceremony at Promontory.

To Major General Grenville M. Dodge belongs great credit for the remarkable construction work of the Union Pacific. He served that company as chief engineer after resigning from the army in May, 1866. Years before he had had considerable railroad engineering experience with the Illinois Central and Rock Island, and between 1853 and 1861 explored the country north and south between the Missouri River and the Rocky Mountains. His knowledge caused Lincoln to call him into conference twice and resulted in his taking charge of the Union Pacific work. He was the pathfinder for the Union Pacific westward just as Judah was the pathfinder for the Central Pacific across the high Sierras.

With Dodge were General Jack Casement and his brother Dan, who were in charge of track laying and most of the grading. At the head of the construction company were Oakes and Oliver Ames.

The Central Pacific company was incorporated in California in June, 1861, while the Union Pacific was organized at Chicago in September, 1862. Henry B. Ogden was the first president of the Union Pacific but was succeeded by Gen. John A. Dix before grading for the road was underway. Vice President T. C. Durant was one of the most active men in the company.

Ground was broken for the Central Pacific at Sacramento on January 8, 1863. There was delay in the arrival of materials from the East and it was October 26, that year, before the first rail was laid. The first locomotive on the road, the "Gover-



The Little Goat At the Left Is the Famous "C. P. Huntington" which Went Into Service on the Central Pacific in April, 1864, As the Third Engine the Company Owned. The 3631, Representative of Southern Pacific Equipment Today, Needs No Introduction.

nor Stanford", made its maiden trip on November 10, 1863, and on April 26, 1864, the Central Pacific started to operate as a railroad with daily trips to Roseville, 18 miles from Sacramento.

The Union Pacific broke ground at Omaha on December 2, 1863, but actual grading work did not begin until the following March. First rails were laid July 10, 1865, on the spot where Vinton and 29th streets now meet in Omaha. From that time on the work was pushed with great energy, over the Great Platte Valley Route, first used by the buffalo, next by the Indians, then by the fur traders and Mormons, and at the time was the route followed westward by covered wagon trains. During 1866, a total of 260 miles was completed; in 1867 a 240-mile advance brought the line to the summit of the Rockies. From April 1, 1868, to May 10, 1869, a total of 555 miles of track was laid to the meeting of the lines at Promontory.

C. R. Gray, President of the Union Pacific of 1929.

Obstacles that seemed insurmountable stood in the paths of both companies. Building the Central Pacific road over and through granite walls of the Sierra Nevada Mountains was literally hand carving. There were no power tools of any kind. Chinese laborers were lowered in baskets over the cliffs of American River Canyon to dig a roadway in the mountain side for the iron rails. Tunnels were bored while the mountain region was covered under snow 30 feet deep in places. Most of the building materials had to be shipped 14,000 miles around Cape Horn, a voyage of eight to ten months. At one time the Central Pacific had 30 ships at sea loaded with materials and equipment. White labor was scarce in California, for men were more interested in digging for gold than in working on a railroad. Financiers of the country hesitated to risk money in such a seemingly impossible undertaking. The world doubted that a railroad could be built by four country merchants in a land that lacked money, men and materials.

While the Union Pacific was closer to the eastern manufacturers of materials and equipment, it faced other difficult circumstances. Built most of the way across treeless country it had to transport ties from great distances. Until November, 1867, there was no through rail connection with the eastern roads. In twelve months of work after this connection was made the Union Pacific built and equipped 587 miles of road, working only from one end, and transporting everything connected with the work an average distance of 800 miles west of the Missouri. This feat probably will never be surpassed.

The Union Pacific men were continually harassed by marauding Indians. After the war the construction force was almost entirely composed of discharged soldiers who were admirably fitted to encounter the savages. At an alarm these men fell into line and met the attack with the readiness and decision of veteran soldiers. From Fort Kearny to Bitter Creek every mile of the road had to be surveyed, graded and laid with track under military protection. Men worked with their guns stacked close at hand, and mostly, it is recorded, they worked and kept up their courage with what sailors call "Chanties." These were songs that have come down through the years as classics of construction days, sung with unnumbered verses as occasion might require. It is said now that track men no longer sing at their work, but if true, this must be because there are no Irish as there were in those dangerous times. History has preserved one of these railroad chanties; perhaps you remember seeing it flashed on the screen in the showing of The Iron Horse, John Ford's great historical picture:

One day, a premature blast went off,
And up in the air went big John Gough.
Says the boss, "Young man, that's hardly fair,
I'll dock ye fer the time ye're up in the air."
CHORUS:
So, drill ye tarriers, drill.
Drill, ye tarriers, drill.
Fer it's work all day,
Without sugar in yer tay,
When ye're workin' fer the U. P. Ra-ail-way.
So, drill, ye tarriers, drill,
An' blast!
An' fire!

Gen. J. S. Casement Who Directed Track-Laying Into Promontory for the U. P.

Doubtless the Chinese coolies, working and building their way to the East, had their track songs also, but if they did history has played them a nasty trick, for they have been lost.

The spring of 1868 found the Central Pacific and Union Pacific on even terms. Both were equal distances from Monument Point in the heart of the Great Salt Lake district. As soon as weather permitted a construction campaign began which stands as one of the notable achievements in the history of railroad building. Charles Crocker of the Central Pacific announced "a mile for every working day," as a New Year resolution, a program that fell short by only a few miles. Both companies were awake to the future benefit in the way of revenue that every additional mile would mean. Canvas cities sprang up on the plains over night, lived a few days and moved on with the gangs as the speedway for the iron horse was forged eastward and westward by an army of 25,000 men and 10,000 animals.

One day the Union Pacific broke all records by laying six miles of track. Charles Crocker and his Chinese pets were invited to match it. They beat it by a mile. Then the Union Pacific came back with seven and a half miles. The camps were now getting close to each other. Crocker declared his men could lay ten miles a day. The story is told that his bet of $10,000 was covered by Vice President Durant. For several days Crocker and his superintendent of construction, J. H. Strobridge, marshalled their forces and laid their plans. On April 28, 1869, eight white men of the Central Pacific, supported by 4000 Chinamen, laid ten miles and 56 feet of track in a little less than 12 hours, a record that probably will never be challenged. It is not likely that ever again

(Continued on Page 37)

T & P Reports on Direct Steaming

Test Shows Speed and Economy

By W. R. Bennett

A TEST for 24 hours to demonstrate the comparative values of direct steaming facilities for filling and steaming locomotives, and the old method of lighting off and generating pressure with the stack blower, was conducted March 26-27 and March 27-28, by the Texas & Pacific Railway at that company's Lancaster shops at Fort Worth.

In addition to the saving in time and the cost of fuel in preparing locomotives for service as a result of the use of the direct steaming system, a marked reduction was recorded in the maintenance work on the firebox and boiler. It is not necessary to spot the engine stack under the smoke jack, making it convenient in placing engines in exact locations for repairs. Likewise, there is no noise as with the use of the stack blower in firing up engines under the old method, nor do the men have as much labor to keep the floors and pits free of waste oil and slush that is found in enginehouses where the engines are lighted and pressure raised with steam blower draft.

When repairs are required to the fuel oil tanks that necessitate emptying tanks, it is not necessary to disconnect tank and move it to fuel oil supply stand-pipe or connection, and again move and connect the tanks to locomotives to light the engines and steam them with oil, as was the case under the old method of lighting off and raising pressure with the stack blower.

Fire hazard, as all are aware in an oil burning enginehouse, is a serious liability at all times. This is entirely eliminated with the direct steaming facilities in preparing locomotives for service. A hazard equally dangerous as the fire liability, is eliminated with the direct steaming process, namely: that of damaging engines as a result of low water and at times lighting off engines before water has been supplied to the boiler.

With the direct steaming process it is not necessary to have an engine watchman, or firebuilder, in the enginehouses. While the monetary saving in cost of labor is not shown, there is a saving in labor with the direct steaming method over that of firing up and having the engines watched under fire in enginehouses not provided with the direct steaming facilities.

One of the outstanding advantages of the direct steaming system over the old practice of lighting off and raising pressure, is the ease and speed with which one or more engines can be made ready by connecting pipes to each blow-off cock (all the Texas & Pacific engines are equipped with two blow-off cocks); in this way engines are made ready in considerably less time than is the ordinary practice with direct steaming and under the former method of lighting off and raising pressure with stack blowers.

For example, the mechanics recently filled the boiler of one of the Santa Fe Type locomotives with hot water in 12 minutes through one blow-off cock connection, and supplied 150 pounds steam pressure by having the steam pipes connected to each of the blow-off cocks, in 16 minutes, a total of 28 minutes.

One of many other cases where engines are required on the minute for wrecking or other emergency service, is that of a Pacific type engine which after leaving Fort Worth on limited passenger schedule for El Paso and California, bursted a blow-off cock body while running, and came to a stop near the shops. Another Pacific engine of the same type was standing dead in the enginehouse. By applying the two pipe connections from direct steaming lines, the boiler was filled with water, the engine was steamed, and the train was again moving within 40 minutes after the accident. At times when pressed for engines, this advantage of the direct steaming facility assists in reducing the average time in turning engines, and thereby increases the daily mileage of locomotives in service. The result of the test is shown here in tabular form:

Test of Direct Steaming Plant

Lancaster Engine House

Purpose of Test

To determine the fuel cost and time of filling and raising steam pressure in locomotive boilers in preparing them for service.

Duration of Test

Firing up with locomotive blowers 24-hour period beginning 2 p. m., March 26, and ending 2 p. m., March 27.

Filling and steaming with direct steaming 24-hour period beginning 5 p. m., March 27, and ending 5 p. m., March 28.

Fuel Costs

Firing up with locomotive blowers and fuel oil from locomotive tenders.

Evaporation feed water at stationary plant:		
Pounds feed water evaporated		460,000
Cu. ft. gas burned		602,000
Ratio evaporation		1.31
Pounds steam to round house		416,000
Pounds steam to east end round house	62,400	
Pounds steam to boiler washing plant	121,200	183,600
Pounds steam for blowers		232,400
Minutes blowers used	4,000	
Pounds steam per blower minute	58	
Minutes blowers used by boilermakers	1,750	
Pounds steam consumed by boilermakers		101,500
Pounds steam for firing 35 engines		130,900
Pounds steam to fire one locomotive		3,740
Gas required to fire one engine, 4.9 M @ .165	.81	
Fuel oil consumed per engine, 91 Gal. @ .0243	2.21	
		$3.02—Total cost of fuel

Raising Steam Pressure with Direct Steaming

Evaporation feed water at stationary plant:		
Pounds feed water evaporated		690,000
Cubic feet gas burned		941,000
Ratio evaporation		1.36
Pounds steam to round house		643,500
Pounds steam to east end round house	64,800	
Pounds steam to boiler washing plant	121,200	186,000

Pounds steam for direct steaming and blowers		457,500
Minutes blowers used by boilermakers	311	
Pounds steam per blower minute	58	
Pounds steam consumed by boilermakers		18,000
Pounds steam for direct steaming 41 engines		439,500
Pounds steam required to direct steam one locomotive		10,720
Cubic feet gas required to direct steam one locomotive, 14, 58 M @ $0.165		2.40

Time Consumed Raising Pressure to 125 Lbs.

Firing With Locomotive Blowers

Number Engines:	Class Engines:	Aver. Gal. Oil at 60 Deg. F. Consumed:	Aver. Min. To Fill With Water:	Aver. Min. To Steam To 125 Lb.	Aver. Min. Filling and Steaming:
15	I-1	106	18	63	81
5	G-1	89	13	46	59
4	M-1	100	15	53	68
5	P-1	73	12	39	51
3	D-10	72	12	31	43
1	H-2	61	13	48	61
1	C-2	58	9	42	51
1	D-8	71	6	26	32
35 Average		91	15	51	66

Direct Steaming

Number Engines:	Class Engines:	Type:	Size Cylinders:	Tractive Power:	Aver. Min. Steaming to 125 Lbs.
15	I-1	2-10-4	29"x32"	97,900	52
7	G-1	2-10-2	28"x32"	79,500	36
6	M-1	4-8-2	27"x30"	65,150	49
5	P-1	4-6-2	26"x28"	53,900	36
1	D-10	4-6-0	24"x28"	40,256	39
3	C-2	0-8-0	22"x28"	69,500	26
1	D-11	4-6-0	21"x28"	31,330	37
2	B-8	0-6-0	21"x28"	39,100	27
1	D-9-1/2	4-6-0	20"x26"	26,373	26
41 Average					43

Conditions

Temperature of feed water for stationary boilers and filling locomotive boilers was fairly constant at 200 Deg. F. during tests of both methods.

Steam pressure on stationary boilers was maintained at approximately 225 lbs. during both tests.

Boiler pressure was raised to 125 lbs. on all engines during tests.

During period engines were fired up with locomotive blowers, one boiler in the stationary plant was operated, while two boilers were operated during the direct steaming test.

Horsepower developed by boilers was approximately the same during both tests.

Results

Fuel cost per locomotive:		
Firing up with locomotive blower, fuel oil	$2.21	
Gas	.81	$3.02
Direct steaming, gas		2.40
Saving per locomotive steamed		$0.62
Saving by direct steaming		20.3%

Time Consumed Per Locomotive

Average time firing up with locomotive blower:	66 Min.
Average time direct steaming	43 Min.
Saving per locomotive steamed	23 Min.
Saving by direct steaming	34.8%

Marshall, Texas.
April 17, 1929.

Locomotives of Classes Quoted in Test Report

Class	Type	Service	Tractive Power
I-1	2-10-4	Freight	97,900
G-1	2-10-2	Freight	79,500
H-2	2- 8-2	Freight	54,700
D-10	4- 6-0	Freight	40,256
M-1	4- 8-2	Passenger	63,700
P-1	4- 6-2	Passenger	53,900
D-11	4- 6-0	Passenger	31,300
D-9-1/2	4- 6-0	Passenger	26,373
D-8	4- 6-0	Passenger	22,200
C-2	0- 8-0	Switch	69,500
B-8	0- 6-0	Switch	39,100

Claim Payments Were Lower

Claims paid by the railroads of the United States and Canada in 1928 growing out of loss and damage to freight shipments were the smallest for any year since the end of the World War, despite a continued upward trend in the amount of traffic handled, according to American Railway Association. The amount of claims paid in 1928 totaled $36,557,-243. This was a reduction of $2,-155,816 from 1927 and $1,630,072 from 1926.

Loss and damage claims due to delays in the movement of freight shipments amounted to $2,816,624 in 1928, a reduction of $701,989 from 1927. Claims resulting from defective equipment in 1928 were $82,620 less than in the year before. Claims resulting from wrecks, robbery, unlocated damage, error of employes, improper handling and loading and freezing or heater failure also showed reductions. Increases, however, were reported in the amount of claims resulting from rough handling, concealed damage and fire or marine loss or damage.

The Pony Should Start Now

A handicap race with automobiles, railroad trains and airplanes, competing against a revived "pony express," is being planned as a feature of the program commemorating the 75th anniversary of the founding of Nebraska as a territory next fall. The race will be from Julesburg, Colo., famous in pony express days, to Omaha, about 400 miles.

The celebration is in charge of the Omaha Chamber of Commerce. Handicaps to be allowed each contestant are now being worked out by F. W. Edwardson, secretary of the chamber's publicity department.

More Time for Oregon Extension

The Interstate Commerce Commission has extended the time within which the Central Pacific Railway is to complete an extension in eastern Oregon under the certificate issued by the commission in 1926, to November 3, 1929.

The man whose soul is in his work never has time to listen to idle gossip.

A man is known not only by the company he keeps but by the company that keeps him.

Coal, Still Is the King of Power

The Chicago Fuel Convention

Coal May Indeed Be King of Power, But on This New Zealand Road Much of the Power Seems to be Going Out Through the Stack.

By C. E. Richard

Old King Coal is still supreme in the power world. As the dominating source of power of the future, coal is as secure as ever, competition from oil, electricity and other substitutes notwithstanding.

This was the consensus of the yearly convention of the International Railway Fuel Association, held at the Hotel Sherman in Chicago last week. Approximately 2,500 delegates from all parts of the country, Canada and Mexico heard speaker after speaker glorify coal. Among them was Sir Henry Thornton, president and chairman of the Canadian National Railways, who described the growing combustion efficiency as the advancement of civilization. Electrification has its limitations, Sir Henry told the fuel men, and works "only where conditions are favorable and suitable."

For cities troubled with a smoke problem, Sir Henry recommended the use of Diesel motor locomotives. The use of such motive power has proved satisfactory on the Canadian National, he said.

Sir Henry's contention that coal is still supreme was upheld by R. H. Aishton, president of the American Railway Association, who estimated that the railroads of the country had saved 38,000 carloads of coal in 1928 by increased efficiency in combustion. Competition through water, rubber and air should be met by greater economies in operation, Mr. Aishton told the fuel men.

H. L. Gandy, president of the National Coal Association, gave the coal operators' view on developments in railroading. "The trend toward electrification of railroads," he said, "is viewed in some quarters of the industry in the same light as the encroachment of competitive fuels in that it makes for reduced consumption of coal. Of course, such a viewpoint is not logical. Whatever electrification of lines there may be in the future will not alter the present fact that steam power is basic to railroad operation."

"The extent of the actual participation of the railroads in the business of mining bituminous coal is not generally realized," said Mr. Gandy. "In a very tangible fashion it cements the bond between the two industries.

"According to the latest government report on the subject in 1924, 135 railroad-owned mines produced 27,000,000 tons of bituminous coal, which represented 5.6 per cent of that year's total production. This coal was mined by 24 railroad-owned companies over a far-flung area. Several other railroads, which do not operate mining properties, are large holders of coal lands.

"Likewise, it can be pointed out appropriately that coal mining companies are engaged in the transportation business. In 1924, locomotives to the number of 14,723 were used in the underground transportation sys-

tems of bituminous coal mining companies. Of the 7,361 underground mines in operation during that year, there were 3,585 that reported underground use of locomotives, and these produced 88 per cent of the output.

"The mines not using locomotives, although numbering 3,776, produced only 12 per cent of the output. Of the 14,723 locomotives of all types used underground that year, 14,280 were electric, 85 compressed air, 226 gasoline and 132 steam. The total number of animals used in underground transportation was 36,352.

"The movement toward mergers and consolidations, a leading subject in the transportation field, also has been earnestly advanced as the solution for the over-development problem in the coal industry.

"Although the merger movement at times seems to make painfully slow progress, the following figures revealing a surprisingly large reduction in the number of mines, accompanied by a steady trend toward larger operating units, are most encouraging.

"In 1923, there were 9,331 commercial mines, exclusive of wagon mines, and in 1927 the number had diminished to 7,011, a 25 per cent decrease. In 1902, 411 mines, being 8.1 per cent of the total number of mines, produced in excess of 20,000 tons each. The aggregate production of these mines was 126,499,000 tons, or 40.2 per cent of the total bituminous coal output of the country in that year.

"In 1927, mines of over 200,000 tons production numbered 779 and constituted 11.1 per cent of the total number of mines. They produced, however, 54.8 per cent of the total output of that year.

"The striking feature of these figures is the 36 per cent increase during the 22-year period in the output of the larger mines. Although no comparable figures are available with respect to the number of operating companies, there has been a substantial reduction in that number, due partly to the elimination of companies because of financial troubles and partly to consolidations.

"I wonder whether there is not frequently opportunity for the railroads to render real service to their fuel-furnishing patrons, the coal operators, and perhaps at the same time to secure increased revenue freight. I have in mind a greater elasticity on the part of the railroads with respect to their fuel contracts by way of currently taking the size or sizes for which there is not then public demand.

"Several operators have informed me that cooperation of such a character frequently would enable them materially to increase their tonnages. The individual buyer may, at times, be more or less aected by fads respecting this or that size. In some instances the difference between two sizes, as regards their use, may not be more or less affected by fads retweedledum and tweedledee."

A report on locomotive firing practice by a committee headed by J. N. Clark revealed that in eight years railroads of the country have reduced fuel consumption 23.5 per cent through more efficient methods of firing. The report dealt with the conversion of approximately $1,000,000 worth of fuel every day into energy sufficient to move the transportation of the country.

Figures of Mr. Clark's committee showed that in 1920 the railroads used 166 pounds of fuel per thousand gross ton miles, while in 1927 they used 131 pounds. In 1928 a further reduction of four pounds was made. In passenger service, the report continues, railroads used 18.1 pounds per passenger car mile in 1920, and 15 pounds in 1928, a reduction of 17 per cent. The report urged that hit-and-miss methods of firing be supplanted by scientific habits so that where failure, or failure in part, is experienced, the exact cause may be determined and remedied.

A sub-committee on fuel oil firing practice, headed by C. I. Evans, recommended that railroads make a test of all fuel-saving devices to determine whether the saving is of sufficient importance to justify their use, since on some roads fuel saving appliances do not accomplish much good while on others the results are well worth while.

The general interest in grate bars made of special cast irons and steel, with which some roads have been experimenting for the last eight years, brought forth a report on the subject from a committee on front-ends, grates and ashpans. Fifty-nine railroads have reported to the committee, it declared, of which 38 now use nothing but plain cast iron. The remaining 21 roads use some special material for grates on about 2,200 locomotives. Ten kinds of cast steel or special cast iron have been reported to the committee as now in use.

Of the 21 roads using special materials, it was declared, 11 regard the duration of their experiments as too short to warrant an opinion as to their relative economy. Seven roads consider the special material as more economical than plain cast iron. One road finds them less economical while the two remaining roads made indefinite replies.

Reports on Diesel locomotives and steam turbines also were made. These reports showed that there were now more than 40 Diesel or oil-electric and gasoline locomotives in service in Canada and the United States, and that this type of motive power has demonstrated its practicability for switching service. Its usefulness along this line, the committee said, was responsible for the large number of orders placed by industrial concerns last year. Of the 15 oil-electric locomotives ordered in 1928 only four were for railroad service. It was stated, however, that the Diesel locomotive is about to be used in the railroad road service in this country on such a scale as will soon prove whether it is adapted to that kind of work.

The convention closed Friday morning with a mechanical session and election of these officers for 1929-30: President, W. J. Tapp, fuel supervisor for the Denver & Rio Grande Western; vice presidents: W. G. Black, mechanical assistant to president of the Erie Railroad; C. H. Dyson, fuel agent, Baltimore & Ohio, and J. M. Nicholson, fuel conservation engineer, Santa Fe System, Topeka.

The executive committee elected is: J. D. Clark, fuel supervisor, Chesapeake & Ohio; C. P. Dampman, supervisor fuel conservation, Reading, Philadelphia; J. E. Davenport, New York Central Lines; C. I. Evans, Missouri-Kansas-Texas, St. Louis; J. R. Jackson, engineer of tests, St. Louis; M. Macfarlane, general fuel inspector, New York Central; A. B. Maurice, National Railways of Mexico; H. Morris, Central of New Jersey; C. Roberts, Pennsylvania Railroad; R. S. Twogood, Southern Pacific. L. G. Plant of Chicago was re-elected secretary-treasurer.

Entertainment played a prominent part in this year's convention. Theater parties, dances and shopping tours through loop stores were arranged for the women guests, concluding with a huge dinner dance on the closing day of the session. Business was cast aside entirely at the banquet.

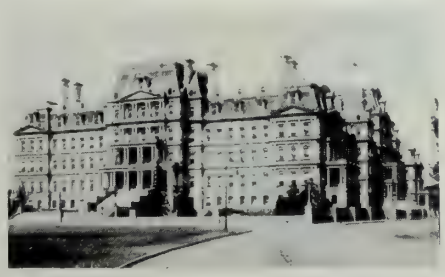
Getting A Bill Through Congress

A Puzzle Few Understand

By Fred E. Kunkel

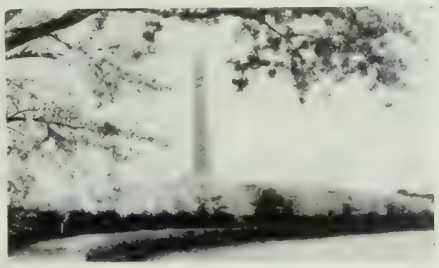
THE AVERAGE high school student who has had a course in civics probably knows much more about the government of his country than many grown persons; and certainly as much as is known by the new congressman who still is to have his trials. Many a business man hasn't the faintest idea how a bill gets through congress, if it does get through. To set down the plain truth about it, the average citizen is much disappointed when he visits the national legislature for the first time. Quite often it happens that only a few members are in their seats; the man with the gavel is only a substitute for Speaker Longworth; members are reading papers or bills, trying to find out what they are about; someone is reading a speech for the record, hoping to impress the folk at home—not a very highly impressive sight of government at work. After the visitor discovers that the wheels of government are working in numerous committee rooms, out of sight, he feels better about the taxes he pays.

The intricacies of bill-making are bewildering for the visitor, and indeed for business men in many cases, and still they are not nearly so complicated as one imagines. There is a well-defined routine which bills must take in their way through the marble halls of the capitol. As might be expected there is much delay, and frequently a bill goes into a pigeon hole and never comes out again. In most cases, perhaps, this is fortunate.



State, War and Navy Building; A Fine Example of Old-Time Union Station Architecture.

A bill is baptized and sent on its way when it is first dropped by some senator's or congressman's secretary into the official reception basket on the speaker's desk in the house or on top of the desk of the president of the senate. From here it goes to the bill clerk who gives it a serial number, beginning with the session as H.R.1 and S.1, and continuing on to the end of the session, when they may run as high as H.R.16,-876, or S.9871. The bill clerk gives every bill the careful "once over" to see that it is written according to the recognized parliamentary procedure as prescribed by the rules and regulations of congress.



The Cherry Trees in Foreground Were Presented to Our Government by the Emperor of Japan. Washington Monument.

After a reference number has been given it the bill is thoroughly indexed alphabetically and by number for quick reference at a later date. Then it goes over to the government printing office, where the desired number of copies are printed. Meanwhile it is also briefed and appears in the Congressional Record, which is the congressmen's Bible and daily record or blotter of business transacted. After the bill is printed and comes back to the bill clerk, it is referred to the committee where the senate or house had directed it to be sent at the time it was read. The committee considers the bill in due course, and if it has enough merit it is reported out of the committee room to the floor of the senate or house, with favorable or unfavorable recommendation. Amendments may be added also. Sometimes the committee report of the hearings is printed. At other times the committee simply makes a short form report. The bill, with its amendments, if any, is then submitted to the house and put on the calendar for action at the proper time. It is then docketed either on the private calendar, the consent calendar, the union calendar, or the house calendar. In the senate there is but one calendar.

Even after a bill gets on the calendar it is still far from passing, for if a congressman or senator objects to its consideration, it is immediately tabled, and may have to wait another week or month to be called up on the floor. In fact, it may remain on the calendar without action for an indefinite period. If it is a measure with tremendous popular support, a special rule can be given which sets a certain hour for its consideration. Hearings are held by committees only on bills behind which there is pressure. If there are 21 members of the committee, eleven members can prevent action. Many referred to committees are never reported out. They die where they are.

The public and business interests find many ways of killing a bill. The first chance to kill odious or unwise legislation is in the committee room at the hearings; later on the floor of the house or senate when it gets on the calendar through delay in bringing it up for consideration, or when it is finally taken up by consent vote and exposed to the deadly debate or filibuster.

If the bill passes the house there is always a chance to kill it in the same way and by the same tactics in the senate, in committee, on the floor or by tagging on all kinds of amendments. Finally if all these means fail, there still is the President's veto power.

So there is little chance of getting anything through congress which is not wanted by the people, by business interests, or industry in general. If a bill does slip through and proves unpopular the next elections usually unseat a good many congressmen, and back they go to work in the former way to earn a living.

While any member of congress has a right to introduce any kind of a bill, if it is without merit it won't go very far through the corridors of the capitol. If it has sufficient merit, it generally gets a chance, but it may and often does get hung up somewhere along the line. Every bill is referred to a committee of which there are 15 in the senate and 45 in the house. A bill is either private or public—private when it relates to individuals, and public if general in nature. Sometimes similar bills originate in both the house and senate and at the same time. This helps to expedite action. If the senate should pass the bill before the house, and the bills are identical, the house will then table its bill and pass the senate bill in lieu of the house bill as a short cut and by consent vote.

Legislation takes the form of either a bill or a resolution in congress. Sometimes it is better to put intended legislation in the form of a bill, and at other times the same matter can be put into a resolution to obtain quicker and more decisive action. A resolution in the senate need only pass the senate, the same being true of a resolution in the house, which need only pass the house. A joint resolution, however, known as house joint or senate joint, or concurrent resolution, must pass both houses. A bill on the other hand must not only pass both houses but it must also be signed by the President.

After a bill or resolution gets out of a committee room and is put on the calendar, general debate follows when the committee of the whole house takes it under advisement, a certain amount of time usually being allotted for this purpose. A bill like Muscle Shoals might have eight hours or more, while other less important legislation would be limited to as low as 3-minute debates.

When a bill is being amended it is read, five minutes for each amendment, and is read in sections. Sometimes it may take two days to go through a single bill, on account of its length. Members have only five minutes to discuss it, and usually they go to the Democratic or Republican wing to get the time allowed and to keep posted on all legislation before congress on the floor.

If the house passes the bill, it is then sent over to the senate chamber, and the procedure is known on Capitol Hill parlance as "messaging the bill". The clerk of the house or his assistant, walks over with the bills tucked under his arm and the doorkeeper of the senate invites him in, announcing the fact at the door that he has bills for the senate, called "messaged over".

A house bill which has been numbered, say H.R.1929, never loses its number in the senate, but is printed again and marked "In the senate of the United States—H.R.1929".

If the senate does not agree with the house and amends it, the bill is then messaged back to the house with the amendments attached. If the house agrees to the amendments it may be passed. If it does not, conferees are appointed, so many by the speaker of the house and so many by the president of the senate. These gentlemen go into conference, and either agree on amendments acceptable to both houses, or report a deadlock, in which case both houses have to pitch in and iron out the situation. If the house and senate agree to the conference report the bill is passed without further delay. The Welch Bill, for example, was hammered back and forth, and suffered 37 amendments before finally it was passed.

After a bill passes both houses, it is then signed by the clerk of the senate, goes to the speaker of the house for his signature, and then to the President through the committee on enrolled bills. If the President vetoes it the bill does not become law unless passed by a two-thirds vote of both houses.

"The whole system is built up on the check and balance plan," says Congressman Clyde Kelly, who probably has introduced as many bills affecting business interests as any man in congress. "Its main purpose is to prevent hasty legislation. In some particulars it has become a handicap to legislation of all kinds. One thing is certain, however, when a bill runs the gauntlet provided for in the rules of congress, it is a measure having tremendous popular support."

Stop! Here's the Money

Men and women old enough to remember the days of melodrama, the real stage plays, long before motion pictures had appeared, ought to enjoy this little yarn. It will bring back memories of names never heard by this generation, and situations that caused many a quiver of backbones, many tears, and a few genuine screams. Who, among the gray heads does not recall the melodrama in which the mortgage always fell due at midnight in the midst of a terrible storm, snow or flood—never in the day time—when father reckoned the village money-lender didn't intend to do right by our Nell. And what shouts went up when, at one minute to twelve, the hero rushed in, a roll of money in one hand, slipped his reserve arm around Nell's slender waist, sneered at the mortgage holder, and cried at the gallery gods, "My time has come, Algernon Traviscourt. Here is your money. Now get out." Algernon then growled something about "Curse the fellow," and disappeared in the storm.

Well, here it is in real life, and it happened in Missouri, believe it or not, and on the homestead of Henry Cox. Not a very dramatic name, but there it is. Henry had a son, Ralph, who wanted to become an aviator. Indeed you can take the old plot, substitute an airplane for the clop-clop-clop of a horse, and you have the old show brought down to date.

Father didn't have money for Ralph's flying lessons, but the boy hustled around and found someone willing to lend the amount on the farm if father would sign the papers. This the old man did, and away went Ralph.

Quite properly things went hard for Henry Cox from that day forward. The mortgage fell due, interest and taxes were unpaid, creditors were pressing father like all get out. Finally Sheriff Joder appeared and announced foreclosure proceedings.

The day for the sale on the courthouse steps at Kingston, Mo., was set. The time 9 o'clock. Farmers came from all over Caldwell county, for the Cox farm was a good buy.

Raising his hammer, Sheriff Joder prepared to dispose of Henry Cox's farm. Then—

There was a roar overhead. An airplane was circling. The farmers gaped. There aren't many airplanes in Caldwell county.

Down came the plane into a field across the way. Out stepped Ralph. He advanced on the courthouse, peeling bills from a roll. "Here's the money, father," he cried.

"Ain't he a fine boy?" Father Cox is inquiring.

The boy had earned the money flying. And if that isn't—or ain't, as they say in Missouri—melodrama we'd just like to know what it is.

A Captain of the Old Guard

Richard Koehler of the O & C

By Charles Hyskell

AROUND nine-thirty o'clock in the morning of almost any day, rain or shine, there may be seen a briskly moving, blue-eyed man, ruddy faced, with closely clipped gray beard, walking down Washington street in Portland, Oregon. His home is in Nineteenth street and his office is at Third street, close to the ancient business district with which he first engaged in battle 55 years ago. He covers the distance in about twenty minutes, and he will be 85 years old next month—June.

He is Richard Koehler, the last survivor of the rail chiefs who completed the Oregon & California Railroad and passed it over to Collis P. Huntington, nearly half a century ago. After a business career of 60 years crowded with the rugged events of railroad pioneering from which most men would be worn and spent, this quiet Captain of the Old Guard shows but little evidence of physical or mental scars, and retains the alert faculties of middle age. He is a gentleman of the old school, singularly sensitive to anything that smacks of undue publicity, scrupulously careful to avoid any claim to achievement. His long years of close contact with the rough and tumble of many railroad battles have produced no trace of a hardened viewpoint on life.

Henry Koehler

In his rather bare and old-fashioned office in the Concord building he spends a few hours daily at his desk, smokes a cigar, lingers over some pamphlet or document relating to past activities, and receives an occasional friend. Seemingly he is immune to the scythe of Time, and apparently is ready to go on call to the front line with an engineering crew and build another railroad.

Born in Schlietz, Germany, graduated in the class of 1864 at Karlsruhe Polytechnic, after ten years of railroad construction in the fatherland Mr. Koehler came with Henry Villard to America in 1874 as special agent of the German bondholders of the Oregon & California Railroad to wrest control from Ben Holliday and protect interests of the German investors. Important work, this, but, if you take his word for it, nothing worth talking about, no anecdotes along the way.

"Nothing like that. It was all strictly business," he said, and the simple reply confirms an impression that anyone must receive from the writings of Villard himself, a man who at one time was president of the Northern Pacific Railway, the Oregon Railway & Navigation Co., and the Oregon & California Railroad; who completed two transcontinental lines, defeated Jay Gould, and put the Pacific Northwest on the railroad map.

Koehler's mission at first was as engineer and auditor. When Villard left the charge passed into his hands as vice president and manager, after the bondholders had acquired the Holliday stock. The O. & C. passed into control of the courts in 1885 and he was receiver until 1888. Negotiations with the bondholders having brought an end of the receivership, the Southern Pacific took a lease on the property and he became manager of the line.

Henry Villard

Koehler completed the road between Ashland and Redding and put in the Siskiyou tunnel. That was but a small part of his achievement. Under his management over 400 miles of track was added to railroad mileage in the Willamette Valley and southern Oregon. The lines under his supervision were entirely rebuilt with new steel rails, bridges and regrades. With fidelity to his clients and the public he disbursed many millions and doubled the value of the properties. Taking hold of a big undertaking when it had practically been wrecked, the patience, trials and ability to accomplish these ends have been little understood and recognized.

Koehler continued as manager of the Southern Pacific's Oregon lines until 1904 when, with the Harriman merger of Southern Pacific and Oregon Railway & Navigation Co. lines with the Union Pacific system the office of Oregon manager was abolished and Mr. Harriman, comprehending his intimate knowledge of railroad building and operation, asked him to become purchasing agent for the combined system in Oregon. He served with distinguished ability in that position until the United States court's divorcement of Southern Pacific and Union Pacific. After that he continued as purchasing agent for the Oregon Railroad & Navigation Co. until 1914 when he retired automatically from active service at the age of 70 years.

Did he quit work? By no means. With some men the stream of life runs full to the end. It is so with Richard Koehler. With his brother-in-law, the late Carl Sphun, he became interested in Alaska Fish Salting and Bi-Products Co. On the death of Mr. Sphun that business was disposed of. He then was 80 years old. Inasmuch as there seemed to be nothing new to tackle at the moment, he permitted himself, no doubt with many a mental protest, to drift into the unaccustomed channel of a gentleman of leisure, who can take golf seriously, or own a bird dog, or even indulge dietetic theories. But dieting has been the least of Richard Koehler's troubles. He subsists on the ordinary food that nourishes working men in any profession, and his obdurate health complex remains unchanged despite all the dietary advice given to elderly people by others who usually die young.

His interest in affairs remains keen. He is an active member of the German Aid Society, the Waverley Golf Club and other institutions. The land of his nativity, too, remains close to his heart. He has crossed the Atlantic six times in the last ten years. A married daughter, Mrs. Ilse Schloesser, is resident in Elberfelde, Germany. His only son, Kurt H. Koehler, is active manager of the Eastern & Western Lumber Co., one of Portland's large lumbering concerns.

His favorite pastime is golf and he is often seen on the Waverley links with Mrs. Koehler, whose robust health matches his own. Sometimes it is a foursome in which he is joined by his old friends, Dick O'Reilly, John Latta and David Loring. The latter was a right of way man with him in the old days of Oregon & California Railroad construction.

Erie Man to Survey the Chinese Railways

J. J. Mantell, formerly vice president of the Erie Railroad, became consulting manager of the Chicago railways, it was announced April 10 at his office at 17 Battery Place. The nationalist government of China consulted American railroad interests with regard to the Americanization of their railroads and Mr. Mantell was selected to make a survey of the roads and report to the nationalist government on the costs involved and savings to be realized through their reorganization on American lines.

Mr. Mantell will visit China and will inspect the Chinese Eastern Railway in Manchuria among others. This line is jointly controlled by the Chinese and Russian governments, but under an agreement the Chinese government may acquire full control between 1930 and 1937. Mr. Mantell will survey 12,000 miles of railways.

This Interesting Bit of Power Ran on a Portage Line in 1862 Between Bonneville and Cascade Locks on the Columbia River. The Union Pacific Owns the Old Relic.

Editorial Comment

The Stunt Flyer Again

THE importance attached to having civilians in charge of war and navy secretaryships was emphasized a few hours after the air tragedy at San Diego, Sunday, April 21. With traditional aloofness the army officers immediately closed their doors to the public. The San Diego board of air control, a coroner's jury, and several hundred witnesses declared the air collision had been caused by an army stunt flyer. The army began its inquiry behind closed doors, but James W. Good, secretary of war, heard about it from the angry multitude, and suddenly the doors were opened.

Six persons died in the San Diego crash, including the reckless young flyer who caused it. All kinds of investigations are now in progress, and one is impending in congress. Meanwhile no travelers have cancelled their reservations in the air liners out of Los Angeles. The daily planes have been carrying capacity loads as usual. All sensible persons know that no possible blame attaches to the Maddux company. Its pilot was attending to his business when the army lieutenant, in disobedience of orders, began his stunts dangerously close to the passenger plane, and finally struck it.

Unfortunate as it was this terrible accident will serve a good purpose. It will save many lives if congress, the department of commerce, and other authorities formulate whatever new rules may be necessary, and then enforce them. Army and navy flyers must know how to stunt in the air; it is a part of their business, but they must be made to do it far from the air lanes of commerce.

Incidentally, it might be a fine thing for the country if Secretary Good were to inform army officers that the people of this republic will not submit to the overbearing tactics and the official boorishness commonly associated with Russia or Germany. There are times when it is perfectly proper to deny information to the public, but the hours following a disaster such as that at San Diego must not be put into that class. The railroads once denied facts and names after a wreck, and much of the irritating legislation under which they now suffer grew out of it. It is entirely possible to regulate the army and navy just as drastically.

Sixty Years Ago

Historic names, great in the early constructive years of the transcontinental railroads, are to be found in several extremely interesting articles in this issue of Transportation. The leading story of the edition, by Erle Heath of San Francisco, will be enjoyed by everyone old enough to know something of the tremendous economic, industrial and social importance of railroads, particularly in relation to the development of the Pacific Coast states. The preparation of this one article, the research required, the illustrating of such a condensed history, took several months, the one object being to eliminate the constantly recurring errors so long a part of the tale, as it had been told in books. Some pretty busy men, among them President Gray of the Union Pacific, and John Ford, internationally known director for the Fox Film Corpn., gave their time to the work.

Other valuable and unusually interesting historical articles are to be found in this month's magazine, among them one by Edgar White of Mexico, Mo., on "Before the Railroads Came West," and "A Captain of the Old Guard," by Charles Hyskell of Portland, Ore., telling the story of Richard Koehler, an early day railroad builder, associated with Henry Villard in various transportation enterprises of 50 or 55 years ago.

No Hits, One Error

A little book of Railroad Facts we read quite often shows that President Hoover was misinformed when he wrote some parts of his message to congress. Near the beginning of this document he said, "Railway rates have necessarily increased."

For the sake of accuracy we hope the President will realize that neither necessarily nor in any other way have railroad rates increased. They have been going down steadily, and to say anything to the contrary is only adding to the farmers' misinformation, and is much to be regretted. The book we mentioned a moment ago, Railroad Facts, shows that if the freight rates of 1921 had been in effect during 1927 the railroads would have received more than 800 million dollars additional payment for the magnificent transportation service they render.

Of course, the President knew he could get the facts about rates in the files of the Interstate Commerce Commission, but it must be remembered that he needed the information for a message to be delivered in a few days. If he had been willing to wait until next fall he might have had all the figures. And by that time he would have learned that the railroads are about three billion dollars shy of the fair return they would have had if rates had been high enough.

The President's Day

One of the most thrilling features of the United States Daily, published in Washington, is the White House record showing just what the President does every day for his wages. Here's the record for April 10:

10 a.m.—Representative Summers (Rep.), of Walla Walla, Wash., called. Subject of conference not announced.

10:15 a.m.—Senator Hale (Rep.), of Maine, called to pay his respects.

10:30 a.m.—Representative Oliver (Dem.), of Tuscaloosa, Ala., called to discuss legislation to dispose of the Muscle Shoals problem.

10:45 a.m.—Senator Waterman (Rep.), of Colorado, called to discuss appointments to the tenth circuit court of appeals.

11 a.m.—Representative Merritt (Rep.), of Stanford, Conn., called to introduce Horace Bushnell Cheney of South Manchester, Vt., chairman of the tariff committee of the Silk Association of America.

11:15 a.m.—Representative Free (Rep.), of San Jose, Calif.,

called to discuss farm relief as applied to vegetables of a perishable nature.

11:30 a.m.—A committee representing the Grain Dealers' National Association called to discuss farm relief and tariff legislation.

12 noon.—Daniel E. Willard, president of the Baltimore & Ohio, called to pay his respects.

12:15 p.m.—Senator George (Dem.), of Georgia, called to pay his respects.

12:20 p.m.—The Austrian Minister, Edgar L. C. Prochnick, called to present Baron and Baroness von Eines, of Austria.

12:30 p.m.—The German Ambassador Frederick W. Von Prittwitz, called to present Professor Dr. Max Rabes, of Germany.

12:35 p.m.—The American Minister to Guatemala, Arthur Geissler, called to pay his respects.

2:45 p.m.—The President at the White House received the newly appointed Minister of Poland, Tytus Filipowicz, who called to present his letters of credence.

Remainder of day—Engaged with secretarial staff and in answering mail correspondence.

Interesting, isn't it? It took Daniel Willard 15 minutes to show how sincerely he respects the President, but the Democrat who followed him was all through and out in the air again in five minutes. Just shows what a good engineer like Mr. Hoover can do.

And then see what happened! At 2:45, instead of hiking up the river for a few hours' fishing, the President had to receive Tytus Filipowicz of Poland!

The Meaning of An Air Mail Stamp

Just what guarantee does the postoffice department put behind the air mail stamp? Only one, and that is the letter bearing the air mail stamp shall go forward to its destination by the fastest available means of transport. Presumably the airplane offers the fastest means. Ordinarily it does, but there may be exceptions.

The winter just past, we hope, has been one of the most severe in American history, especially over the Rocky Mountain and Allegheny territories and through a part of the South. There have been times when the air mail planes could not get through; likewise there have been times when trains were stalled; and there have been times when no means of transportation could be relied upon. In such circumstances the air mail stamp gives only the assurance that your letter will get to its destination as quickly as possible If the airplane can not make the trip then the mail is trained or it is sent forward by motor bus, whichever is best to get it through in the quickest possible time. Undoubtedly there have been instances when a letter bearing an air mail stamp has not been carried a single mile by airplane, but it has gone forward as quickly as available means of transport could carry it. If the letter had carried ordinary postage and gone forward by train it would have made the speed of that train, and no more. If the train was snowbound, or delayed as a result of any weather condition, the mail waited with the train. Of course, if there were exceptional delays in train travel additional means would be provided to keep the mail moving. There is an old saying that, "The U. S. mail must go through."

Nominally a letter from New York to Los Angeles should reach its destination within approximately 40 hours, allowing time for the picking up of the mail at its point of origin and delivery of mail at its destination. The trip actually is made by the air mail planes in approximately 32 hours, but the letter may have been mailed several hours before the departure time of the airplane, and delivery can be expected to take an hour or two.

In the matter of dispatch and delivery the air mail stamp also guarantees a distinct preference. Postal regulations require that the air mail letter shall be given preference over all others. At the point of origin it must be the first letter to be prepared for dispatch. At the point of destination, it must be the first letter to be sorted and given to the postman for delivery.

There have been delays in air mail transport just as there have been delays in all other means of transportation. But the air mail service has proved of mighty value to the people of this nation and its value is steadily increasing.

The Editorial of This Edition

Major T. Q. Ashburn, chairman of the Inland Waterways Corpn., always is interesting. Speaking, one day last month, before the New Orleans Chamber of Commerce, the major established the fact—to his own satisfaction—that the corporation he heads was organized and is operated by the federal government to demonstrate that river transportation in the United States is feasible, economically sound, and of great public benefit.

In view of the past history of these barge lines, the government's eager pursuit of freight business, the strange results obtained in the yearly reports of operations; in view of what we have learned about our government's conduct every time it steps outside the beaten path arranged for it long ago; in view of these things we find little cause for rejoicing in Major Ashburn's assurance that the primary purpose of the Inland Waterways Corpn., is not to beat down railroad rates.

This reads peculiarly, to say the least, when one remembers that only a few months ago the corporation announced, formally, that its Mississippi River rates would be, on the average, 20 per cent below those charged by the railroads.

Farther along in his address Major Ashburn said the waterways corporation was organized to obey the intent of congress to encourage and develop waterways, and "to carry out the mandates contained in the Transportation Act of 1920."

The original reason for government participation in waterway transportation disappeared with the World War. Major Ashburn himself admits this, in effect, when he says: "Most of you know that during the World War a survey was made of the navigable streams and canals of the United States to see how they could be utilized to relieve the transportation congestion brought about by our attempts to supply our troops overseas, and that certain water avenues were adopted as offering some help, if they could be utilized, all available boats bought or commandeered, and transportation facilities inaugurated thereon, under the auspices of the Railroad Administration."

The congestion about which Major Ashburn speaks has not existed for several years. The railroads could take all the freight the government's barges now carry, and much more, without straining their resources of equipment.

At the close of the World War the government found itself in possession of numerous vessels, among them a job lot of barges, of no great value in times of peace. As no navigation company could be found sufficiently

moronic to buy these barges the government decided to go into the freight-carrying business itself—and a perfectly wonderful idea it was, on other people's money. So there it is today. As to the so-called mandate, this is what the Transportation Act of 1920 says about these barges:

All boats, barges, tugs and other transportation facilities acquired by the United States under the Federal Control Act (except such properties as are part of railroad systems) are transferred to the secretary of war for operation and such further construction as may be deemed necessary, so that the lines of inland water transportation established during federal control shall be continued. Government interests in Mississippi River shipping are also transferred to the secretary of war. The operation of all of these properties is made subject to the provisions of the Act to Regulate Commerce as amended and of the Shipping Act of 1916 "in the same manner and to the same extent as if such transportation facilities were privately owned and operated."

The government's barges and ships never have been operated and managed 'in the same manner and to the same extent as if such transportation facilities were privately owned and operated." The war department, through the Inland Waterways Corpn., has made rates for itself in direct competition with railroads which are permitted to charge only as much as the government, through the Interstate Commerce Commission, will approve, while the government's barge rates, according to the waterways corporation's own announcement, are 20 per cent below railroad rates. It has drawn its support from the people in taxes; it has paid no interest on the money it has received in the form of appropriations; it has had no taxes to pay; it has paid whatever wages it could induce men to accept. If it were not for these idealistic conditions, denied, of course, to railroads, its barges and other vessels would be rotting today on sandbars as millions of dollars' worth of government shipping has rotted.

Whatever the government felt necessary to do in war time is not under scrutiny here. Anything to win that conflict was justified in the hearts of patriots. What the government has done since that time with these river barges in competition with railroads is very much in the limelight, and one of these days will receive the sensible consideration it merits.

The war department has never been acclaimed for its transportation experts, but these, if there are any, should realize that if the war department is to emerge with credit, it should transfer its white elephant to railroad managers who understand the handling of such animals. To Major Ashburn, a barge upon the river's brim, a simple barge, it is, to him, and nothing more.

It is a mistake, the major says, to say that because the river freight service is government-owned it can not succeed. This is precisely why it can not. No large business enterprise operated by government ever has paid its way. Only by constantly drawing upon the people, a very few of whom, if any, ever receive a cent's benefit; only by covering up deficits with new appropriations, has any government undertaking in business ever been kept alive. The Inland Waterways Corpn., and the Alaska Railroad are a fine pair to hold in the transportation game. In both cases a reduction of yearly loss is the occasion for loud and continued cheering.

It is thoroughly characteristic of government that in an age when everything else is being speeded up to the highest pitch, the nation is asked—indeed is compelled—to maintain the slowest form of transportation the world has ever known, and because of its slowness, the most costly. Every reasonable effort is put forth to move freight traffic on railroads faster and faster. Competion is keen. Passengers are riding in the finest and costliest equipment imaginable; the strain to reduce time schedules is constant; railroads and air lines are coordinating to whisk people across the continent faster than human beings ever rode before. In the midst of all this rush and hullabaloo the war department, placid and stodgy as usual, calmly asks the people to ship by barge! Outside the movie comics, can you beat it?

By the Way - - -

Men and women who growl over rates and froth at the mouth about the Pullman surcharge should read the fine article in the Atlantic Monthly for March, "A Wedding Journey in 1825." If such persons are not wholly bereft of reasonableness they will feel much better afterward.

The article mentioned is made up of letters from Thomas Jefferson's granddaughter, written while on her honeymoon through the South, up to New York and Boston and back again. In one of these letters to her famous grand dad the bride says:

"The facilities for traveling are now such that I have passed over about 1,000 miles in 12 days!"

That trip was taken about four years before Stephenson made his world-breaking record with the famous Rocket in October, 1829. Compare this journey and the time it required with one over the same distance today. It is about a thousand miles from Chicago to New York. The trip is made in 20 hours and it has been done in less.

There was a "Mr. Coolidge" in those days, too, and he took the young couple on a jaunt through the New England states, a side trip that very nearly prostrated both of them. However, they did get some sleep while traveling, it appears, the Coolidge of 1825 being no more loquacious than Calvin of our times.

Colonel Lindbergh says he will go right on flying after his marriage. However, this is subject to amendment, as all married men know, and as Colonel Lindbergh does not. He may know how to manage the Spirit of St. Louis, but matrimony is another kind of ship, as he will discover some day. If Mrs. Colonel says stay on the ground he'll stay there. The colonel has one more guess coming. A well-trained pilot, he says, is just as good when he is old as when he is young. Go on, Colonel.

Many persons regard railroad tracks as a kind of public highway, and use them freely despite the law of trespass. In the last 38 years 156,000 trespassers have been struck and killed by trains. Of this great army, 35,000 were children under 14 years of age and 46,000 were between the ages of 14 and 21.

When an airplane near Pana, Ill., skimmed along near the ground, preparatory to landing in a pasture, a few days ago, a cow which until that moment had been resting placidly, became so alarmed that she sprang up quickly, elevated her tail as is the habit of such animals when alarmed, and struck out for home. But the airplane was faster and it cut off her tail.

A few days before this tragedy was reported an attorney-aviator started to make a hurried landing in a pasture near Los Angeles. A large bull stood ready to dispute the intrusion. Of course, there was a collision.

The bull was upset and so was the plane. Indeed, the bull was killed. The attorney, however, seems to have got a continuance. What with motor cars, trucks and airplanes life seems more and more uncertain.

Boulder, Colo., is about 30 miles from Denver. It is estimated that nine-tenths of the population ride between the two cities in their own automobiles or in public buses. Nevertheless, Boulder has petitioned the state railroad commission to compel the Colorado & Southern to erect a passenger station "in keeping with the growth and progressiveness of the city."

Wage levels continue to rise. The bureau of railway economics says average hourly earnings for all classes of employes in the first eight months of 1928 were 67.8 cents an hour, an increase over the same period in 1927 of 1.3 cents. Applied to the total hours of service of a typical year, this amounts to an annual payroll increase of approximately $60,000,000 from increase in wage rates. Adjustments of wage rates of several classes of railway employes during the past two or three years are reflected in the continued increase in average hourly earnings.

Taxes show a slight reduction so far this year, but a reduction relatively smaller than the decrease in revenues. The ratio of taxes to operating revenues has therefore increased, standing now at the highest point ever known. In the first nine months of 1928, 6.30 cents out of every dollar of revenue was absorbed by taxes, contrasting with 6.17 cents in the same period of 1927. The ratio of taxes to revenue during the ten-year period from 1917 to 1927 ranged between a minimum of 4.4 cents per dollar and a maximum of 6.1 cents per dollar, the trend being almost constantly upward.

Paying For Results

Gerard Swope, president of the General Electric Co., announced, last month, a plan for the paying of employes "by results" instead of merely for their time. A good idea, but the company will encounter strong opposition from organizations whose theory of payment is based upon the fact that the slowest man sets the pace.

It may not be true in the experiences of the General Electric but certainly it would prove true that if Mr. Swope's plan of payment for results were applied in many enterprises the pay roll would be discouragingly low. Mr. Swope says in his annual report:

"The simplest method of wage payment is to pay by time. In many respects this is unsatisfactory, principally because in itself it offers no incentive to do a better job, nor does it reward the efforts of the ambitious worker."

Flowers for the Living

The fear that he may be thought sentimental or soft, or that an employe may immediately ask for more money, keeps many an employer or superior officer from giving out one of the cheapest things in this world today—praise. The fault is by no means characteristic of railroad officials, although they are lamentably afflicted with it; it is quite common to officials in all industries and businesses. The Princess Kropotkin, writing in Liberty, says fame may outrun us from start to finish, yet we go on hoping that some day we may get just a little human recognition for our efforts. Most of us need praise—need it very much. Some men simply can not do really good work without it. A farmer's wife once wrote to a magazine, "Sometimes I feel like copying the woman who served her menfolk cattle fodder one day for dinner, after waiting 20 years for a word of praise. 'I've never heard aught to make me think you'd know the difference,' she said when they declared she must be crazy."

You may not believe in back-slapping, but for goodness sake don't be so hard-boiled that it hurts to tell a workman he has done well. He may do better. We never know about the flowers that are sent us when we take our last ride. It will give you a glow, a glorified feeling, an urge to roll over, like a kitten with a catnip ball, just to say a few pleasant words now—today—while the man below you is still able to hear them. He may faint, but it's worth trying.

In one of his homely poems Edgar Guest describes employes who are treated as if they were machines. The last verse seems to fit into this morning's sermon:

> I may be a fool, but it seems to me
> If I were a business man
> And looked to my men for loyalty
> I'd work by another plan.
> I'd take an interest now and then
> In the needs and hopes of my fellowmen,
> And once in a while I'd stop and say:
> "Well, how are the kids and the wife today?"

The Boiler-Plate Editor

"The average rate of speed of American express trains is less than that of similar trains in England. It is hard to understand why this should be so. If the British can have speed along with safety and comfort, surely we can."

The foregoing paragraph is being circulated about the country again. The man who wrote it doubtless knows his own township rather thoroughly. For his benefit, and not because any informed American will believe a word of his contribution, it is necessary to say again what we said in this department in July, 1928: The British have speed with safety and comfort because of the total elimination of grade crossing, in addition to fast locomotives and wonderful roadbeds. Every country road, every city or village street crossing, is either above or below the tracks. The traveler on fast British trains never gets an opportunity to look up or down a highway or street at grade, and he finds himself traveling at full speed through cities and villages on tracks high in the air. Whether passing through a large city or a small population center, the traveler beholds a sea of rooftops.

Thus the British fast trains speed along unretarded by any municipal regulations. There are no stops and starts to waste time and eat up power. Time is saved, fuel is saved, and more than that, the nerve of the engine crew is saved. The driver—we believe that is what the engineer is called in Britain—knows that he isn't going to hit a motor car, a team, or a trespasser. Vehicles can't go on the right-of-way and trespassers do not. Trespassing upon British railroad rights-of-way is sure to lead to an arrest, and the British just naturally keep off. Little wonder that the railroads of no other land can compete in time and non-stop runs with the fast British trains.

Don't forget, either, that England, if it were movable, could be stacked away comfortably in one of our medium-sized states and not cause much crowding.

Trunks of the Early Days

Baggagemen of 1929 Would Laugh

By Alma Jane Moore

If they really do the vicious things charged against them the baggagemen of the present lively era would make short work of the trunks of 50 years ago. Indeed if we go back a few years farther we find there were no baggagemen, and much as we may slander those of today we can't keep from being thankful that we need not "stow our things as best we can under our seat or legs" as a young Englishman wrote about a journey in a stage-wagon in 1795.

In the days of the earliest pioneers in the United States the traveler gently folded his best homespun shirt in a bundle, tied it to a stick and slung it over his back. When the Indian trails became more clearly defined and wagons and carts could be used, baggage became easier to transport and consequently more pretentious. Still later when the stage coach came into use the types of baggage changed again, but the coming of the railroad brought the greatest changes of any influence in its history. Larger trunks could be accommodated in the special cars set apart for them.

At its centennial celebration a year ago last fall the Baltimore & Ohio had on display more than 40 trunks and bags, some of them centuries old, assembled from many parts of the world. To the person accustomed to the de luxe wardrobe affairs of today the sturdy little brass-studded trunks of years ago were very strange. Can you imagine the modern youth boarding the limited for Harvard with the trunk used by Icabod Tucker of Salem when he went there in 1792? It was 18 inches long, ten inches wide and four and a half inches high, and lined probably, with old newspapers or gaily flowered wall paper.

Judge Jonathan Corwin's Trunk, 1670, Now in Essex Institute, Boston.

Wood covered with horsehair was the most popular material in the early colonial days, although canvas, leather, and buffalo hide also were used as covering. It was quite the swanky thing to have one's initials in brass nails on the top of the trunk and also the date. Brass nails were used, too, for other ornaments, and to hold scalloped leather strips in place. Judge Jonathan Corwin of Massachusetts had such a trunk in 1670, but it was larger than most of that date, being 39 inches long, 21 inches wide and 20 inches high.

Trunk Used by Icabod Tucker of Salem, Mass., at Harvard in 1792.

The cylindrical trunk was very popular and was in use for nearly a century and a half. One of these, 21 inches long and ten inches wide, was built especially for the packing of hoop skirts, which leads us to believe that, after all, modern clothes have some advantages.

The French chaise, when it was introduced by the Huguenots in 1700, brought an entirely new type of trunk, one that is called the grandfather of the automobile trunk. The one in the B. & O. exhibit, which belonged to John Bott of Salem, was of wood covered with nail-studded brown leather, and was almost a perfect triangle.

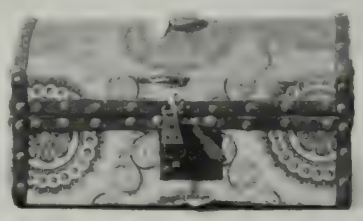
When some enterprising manufacturer was clever enough to contrive trays for smaller articles of clothing it was considered very remarkable, but someone did this about 1857 and called it the "Jenny Lind." It was in great demand until the "Saratoga" was made with trays for dresses, a top tray with small compartments and even a hat box. Then there was nothing to look forward to, it was thought. The last word in luggage efficiency had been reached. Imagine the consternation a modern wardrobe trunk, with its compact drawers, hangers and even ironing board and iron, would have caused! The ordinary wardrobe trunk now in use weighs 70 to 90 pounds empty.

As trunks became larger and heavier it was impossible for them to be handled by the regular trainmen as had been the custom. Employes had the distressing habit, too, of sitting on the trunks and erasing the chalk marking of their destination. For a time brass tags were used for markers, but these were found to be impracticable, and with many misgivings, the cardboard tag was introduced. Much to everyone's surprise it was found to be satisfactory.

This tag was inserted in a brass shell to protect it from being torn or disfigured. At that time it was thought that no type of card check was practicable unless it was so protected.

With the steady improvement of the service, and as the re-use of brass checks and shells presented many difficulties in operating practice, the cardboard checks of today began to receive serious consideration. When this style of check was first proposed it was opposed on the theory that such a check affixed to a piece

of baggage by twine would not withstand handling en route. A test was instituted by requesting passengers to tie a shipping tag on their luggage to determine how far it would travel before being lost. Great was the astonishment and satisfaction when it was found that trunks so marked reached thei rdestinations safely, sometimes after having traveled a distance of several hundred miles under widely varying transportation conditions. When the feasibility of the cardboard checks was fully established, their adoption for general use was rapidly accomplished.



Hand Type, Owned by Alfred Peabody; Born 1704.

The present form of cardboard check, with few modifications, has been in use for many years. Recently the Baltimore & Ohio has instituted a combination baggage check and seal. It not only locks the check on the baggage, but assures absolute privacy and safety of the contents. This is a goal the railroads have been striving to reach for a number of years.

So efficient is trunk service now that mishandling is a rarity. A complete record, including the description of the luggage, the name and address of the owner, the condition of the piece, and the destination, is listed.

Buses, Railways and Planes

By Strickland Gillilan

We were headed for the Mojave desert, but we turned west over dirt roads when we got to Lancaster, and tore through the Antelope Valley as fast as the law and caution would allow. As we rode along I fell to thinking about this bus business, particularly in the West, and adopted a resolution to the effect that, as in the case of steam railroads, it has developed something fine—a race of men with courage and judgment, for drivers. These men simply must make time.

Talk about the heroic railroad engineer! That individual will still hold our admiration, but this new character has to have all the railroad engineer has of caution and courage, and at the same time has to steer his vehicle, something a railroad engineer never had to do. The bus driver has to be his own dispatcher and pick out passing places, and this with all kinds of other craft running on his rails. He has to be sober and steady and courteous and everything else, for he is conductor as well as engineer and brakeman—he is, indeed, the crew. It will develop supermen and be a firm anchorage for the cause of total abstinence, such as railroad employes have long been.

Bill, the big, wide guy who drove us, one day last spring, from Los Angeles to Tulare where we began catching shorter-run stages for Porterville, became a hero to us. He seemed like an old neighbor, when we finally watched him disappear in the dark as he sped on to Fresno—nearly 12 hours on duty with only two or three relaxation periods. Yet he stayed cheerful and kind, and made his time.

By detouring through Antelope Valley, we missed the wonderful Ridge Route, one of the things we had meant to see, but after we got back to the hard road below Lebec, and had gone through that wonderful defile with its never-ending descent through the notch below Greenfield, we were rewarded for all our hardships in life—the lupin field appeared to our incredulous view. There simply can't be any such thing as we saw when that notch opened! It had to be a dream of some kind. I looked at Herself and asked:

"Do you see what I see?"

The Bureau Trunk of 1896 Has Been Called the First "Wardrobe."

She said she saw something impossible. Then I knew she saw what I saw — a limitless drop curtain of solid purplish blue. At least a thousand level acres of blue lupin in full bloom spread out before our eyes. It looked as if some giant en route home from the giant paint store with giant pails of paint for his purplish-blue home, had stumbled—it might have been Bluebeard going home with whisker-dye, for all we know. Anyway, the coloring matter was spilled over a world-big landscape and stayed there.

That sight alone is worth going on a bus ride to see. Such sights, with the wonderful forestation, relieve the weariness at intervals and make you feel as if you had just started.

Of course, this Antelope Valley detour had thrown us an hour or so behind our schedule, so when Bill pulled out of Bakersfield, he stepped on the gas. It was dusk by then, and the dark came on quickly. Without startling us a bit he made the 63-mile run to Tulare (through all kinds of traffic, road-hogs and other swine, and a good many human beings who swung quickly to the right when Bill mooed at them) in an hour and forty-eight minutes.

Next day we Santa Fe'd to Fresno and expected to get out of there at 7 a.m. to drive by bus to San Jose—a long trek. The program seemed to be fearfully early, so I did a little figuring with timecards and the telephone. I discovered that by leaving Raisinville at 8:10, on a smooth running Southern Pacific train with a diner, I could catch that selfsame bus at Tracy at 11:20! So that is what we did. The later start was an advantage, the train ride was comfortable, and when we got to Tracy the bus was a novelty once more. And on through poppies and gardens and orchards and residence sections we rolled—a detour for Dumbarton bridge, please—to San Jose, where we took private conveyance for beautiful Saratoga, site of the annual blossom carnival of Santa Clara county. That is the prune headquarters for the solar system.

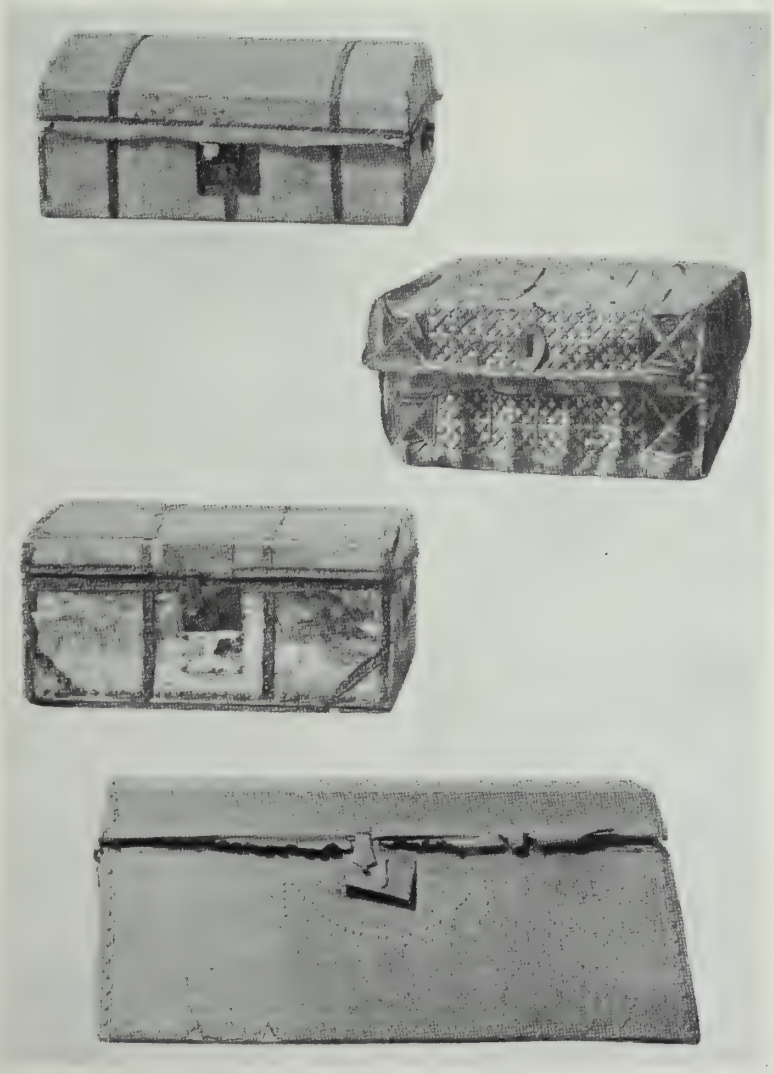
We didn't get to ride one of the de luxe buses! That is a treat we still have in store. Those things stop very seldom. They are equipped with restaurant, lavatories, reclining chairs for sleeping—but no barber shop or bath room.

I don't know any better thing to

do, or anything more interesting, than taking one of these bus rides. Of course, now and then you see a tourist who makes you realize what you might become if you are not careful, but no trip is devoid of all excrescences. And it is perfectly possible to be a tourist and not be a nuisance. People on the Pacific Coast are as patient as Job with the tourist, no matter how offensive he may be. And there are people traveling now who have been to so many places, who have been from home so often before, they know how to be courteous and thoughtful and cheerfully philosophical themselves—honestly!

The tourist who expects to make one pillow-slip full of doughnuts last him all the way from Calais, Maine, to Tia Juana and back home, and finds himself running short at the Needles, westbound, will always be a little peevish, and critical of the country he visits.

The fine thing about this bus riding is the fact that you may change to a railroad almost any day or for an overnight sleep, get back on the bus in the morning, if you figure carefully, and see about all the out-of-the-way places along the journey. In some parts of the country, too, you may change to an airplane from a bus; there'll be more of this next spring, and when you come to your journey's end you have really seen America, from the surface and from the clouds. In such various forms of transportation you never grow weary. There's too much to see. You just wonder why anyone should cross the seas for other sights with so many here at home.



1.—A gaily figured wall paper lines this very old horsehair trunk. 2.—Hand trunk made in Mexico in 1776. 3.—Rawhide trunk made in London for Capt. Savage, of Gen. Washington's staff. 4.—A chaise trunk made before 1800 suggests the motor trunk of 1929.

Traveling Motor Schools in Australia

Latest developments in servicing automobiles will be shown to country dealers and garagemen in Australia by the staffs of several traveling motor service instruction schools. The schools were organized by the Australian branch of a large American automobile company. They are mounted on trucks and equipped with new type garage tools and equipment, the use of which is explained by instructors who travel about the country with the motor school. Several of these motor instruction units are now in operation in New South Wales, and one has just begun its first trip in Victoria. The object of the training is to give to the country garagemen a specialized study in modern car repair methods and by doing this, to offer better service for owners of the automobiles manufactured by the company. The schedule of the school provides for a five days' course of instruction for all country dealers.—*U. V. W.*

As to Efficiency

A most important influence in our national progress has been the expansion and increased efficiency of transportation. Prior to 1860 railroads were in small and detached units built on different gauges, and freight charges were rarely less than 2 cents per ton mile. Beginning in 1869 consolidations were effected, gauges standardized and uniformity of operation introduced, which have gradually reduced freight charges to about 1 cent per ton mile. Business has so much increased that passenger traffic is three times and freight six times as large as they were in 1890. There has lately been a remarkable increase in railroad efficiency. In the five years prior to 1927 the average distance traveled by a freight car was increased four-twelfths, while the proportionate consumption of coal was reduced two-twelfths, and one-twelfth more employes moved four-twelfths more of freight. The movement from producer to consumer has increased 40 per cent in rapidity. The periodic car shortages have been entirely eliminated. Goods are handled with so much care that the cost of paying for such damages has been reduced 70 per cent.—*Calvin Coolidge.*

Long Line for Short Talks

What is believed to be the longest private telephone line operated by any railroad in the United States was recently put into operation by the Great Northern Railway between St. Paul and Seattle. It is 1,800 miles long. Beginning of the new service climaxed ten years' development of the railroad's private lines.

Death Comes to Edward F. Carry

President of the Pullman Co. Since 1922

Edward F. Carry, president of the Pullman Company, died at his home on Lake Shore Drive, Chicago, April 24, aged 62 years. Mr. Carry's health had been failing for some time, but until within a week of his last illness he had been regularly at his desk in the Pullman building, where he had served his company since 1922.

Mr. Carry was the son of an iron founder at Fort Wayne, Ind., where he was born May 16, 1867. In his public school days he drifted naturally into his father's trade, and following this trend, went to Chicago in 1888 to enter the employ of Wells & French, railway car builders. He liked the atmosphere of a plant where things were made of iron and steel, but his ambition led him to study something offering a more likely road to promotion.

Lacking a college education he cast about for an opening in work in performing which he might at the same time study things appealing to his constructive mind. He became a stenographer, kept his eyes and his ears open for opportunities to advance, and to such good purpose that eventually, in the next ten years, he became secretary of the company, a position filled with possibilities in making contacts with other interests which proved fortunate.

When Mr. Carry left Wells & French in 1899 it was to join the staff of the American Car & Foundry Company. He was vice president of that corporation in 1916, when he was elected president of the Haskell & Barker Car Company at Michigan City, Ind., and in this capacity remained until its absorption by the Pullman Company, of which he became president.

Wartime emergencies brought his abilities into play in various governmental shipping commissions. He was director of operations of the United States Shipping Board, chairman of the Shipbuilding Labor Adjustment Board, trustee of the Emergency Fleet Corporation and chairman of the Port and Harbor Facilities Commission.

Edward F. Carry

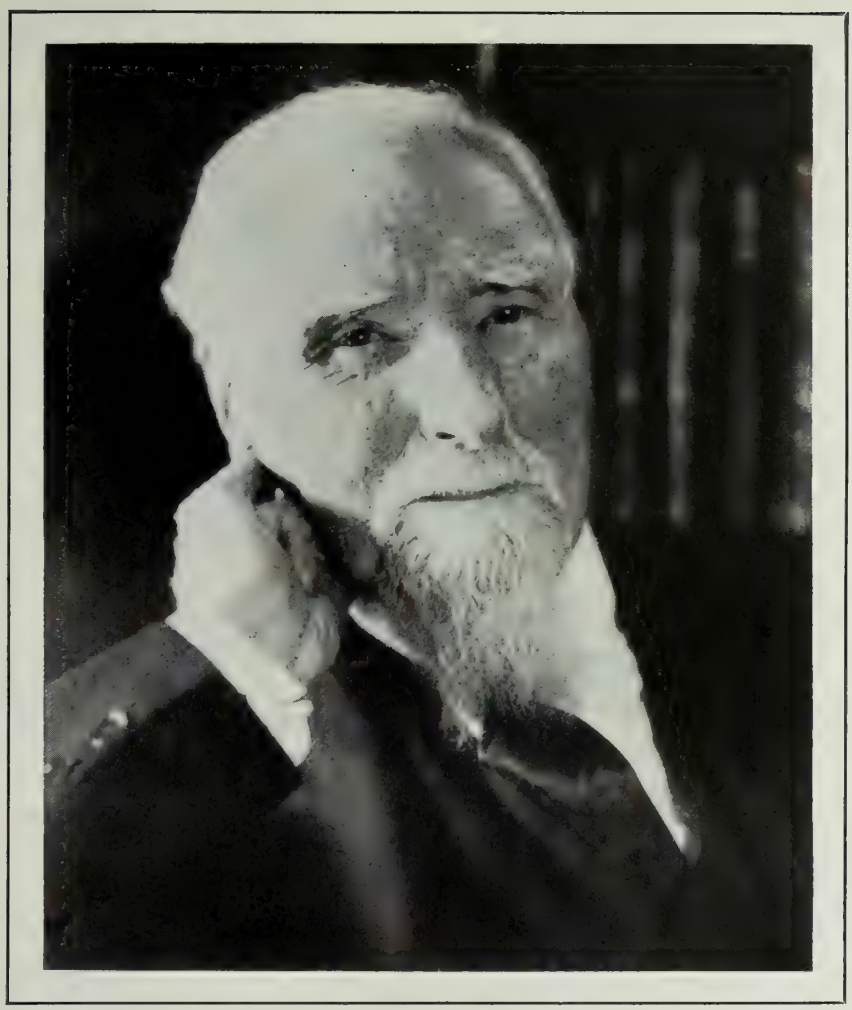
Mr. Carry was a director of the Atlas Portland Cement Co., the Continental & Commercial National Bank, and of numerous other banks and commercial and industrial organizations. He belonged to business, social and sporting clubs in Chicago, New York and Washington, and was constantly active in charitable and religious movements of various kinds. His direction of the Associated Catholic Charities and his interest in Catholic educational facilities earned him the knighthood of St. Gregory, conferred by the Pope.

David A. Crawford, executive vice president, formerly president of the Pullman Car & Mfg. Co., has been elected to succeed Mr. Carry. Mr. Crawford was born in St. Louis, April 1, 1879. He is a graduate of the Missouri university, class of 1905.

Safety Work

With the announced determination on January 1, to cut accidents among employes by one-half during 1929, as compared with last year, the safety department of the Rock Island Lines through Vice President L. C. Fritch, has issued a statement showing an average reduction of 19.9 per cent in injuries during February of this year, compared with January. This report has given the safety campaign on the railroad a big impetus and has aroused employes all over the system in an effort to exceed the mark set on the first of the year. The record covers all classes of employes, aggregating nearly 40,000 over the entire system of 8000 miles on 14 divisions.

Fire is the test of gold; adversity of strong men.—*Seneca.*



Captain Dollar

Little Stories About Big Men

When he was 11 years old he earned 60 cents a week. That was in 1855. Now he owns more than 50 modern ships valued at $75,000,000. There, briefly, you have the life story of Capt. Robert Dollar, president of the Dollar Steamship Line and owner of the Dollar Lumber Company at Dollartown, British Columbia.

The "grand old man" of shipping, now nearing his 85th year, still is the active and directing genius of the Dollar enterprises, which he has made an outstanding figure in international maritime affairs.

Captain Dollar was born in Scotland, March 20, 1844, the son of parents in moderate circumstances. At the age of 11, before getting a fair educational start, he left school and went to work in a machine shop in Scotland and received for a week's wages a half crown—60 cents. At 13 he landed in Ottawa, Canada, and went to work in a machine shop. After six months at this work, he got a job as chore boy with a lumber camp, 100 miles from any signs of civilization. There were only two men in the camp who spoke English so the boy learned French. He still speaks it fluently. Lumbering suited the boy. He stuck to it, made good, and at 20 was the boss of 50 loggers.

In 1880, Captain Dollar went to Dollarville, Mich., where he entered upon his first private venture in the lumber trade. After attaining success in the East, he went to California in 1889 and established a large lumber mill in Sonoma county. There he prospered to such an extent that in that same year he bought his first lumber schooner, the Newsboy, and began his distribution of lumber products that soon was to cover the entire world.

From this early start the Dollar shipping and lumber interests grew to such proportions that today they own one of the largest mercantile fleets in the world, whose service and regular ports of call include every section of the globe. The eight vessels of the round-the-world fleet operate over a route which touches 15 countries and 21 world ports.

Captain Dollar increased his lumber holdings on the Pacific Coast and at Dollartown, British Columbia, which is named in his honor, he has one of the most modern lumber mills in the world.

The 85-year-old patriarch of the western shipping world gave a luncheon not long ago aboard his ship, the President Polk, to commemorate the completion by the Dollar Steamship Company of the conditions of its contract with the United States Shipping Board. These conditions, made five

P&A Photo.

Sir Henry Thornton, Chairman and President, Canadian National Railways, and Col. Robert Lamont, New Secretary of Commerce, at the White House.

years ago when the company took over seven Shipping Board vessels, was that ten round-the-world trips should be made every year for five years. But instead of the 50 trips required, there were 107.

"At the end of the first six months," said Dollar, "I checked up and found we had lost $465,000. That certainly was a discouraging start. Every big shipping man of the world I talked with told me the round-the-world service scheme was an impossible thing, that you had to put out from ports and come back to them if you hoped to succeed.

"I visited all of my competitors. Lord Inchcape said to me: 'Dollar, you're a damned interloper.' I responded: 'Well, you're going to have competition and you'd better have it from someone you know than from one you don't know.'

"I made all my competitors my friends. Any fool can start a rate war, but none of my competitors ever could accuse me of using unfair tactics.

"I went personally to Singapore to try to get rubber and tin to carry. Exporters there told me: 'American shipmen are fly-by-nights; you can't depend upon them when you want them.' I visited all of the exporters two days later and got turned down again.

"Then I got the rubber exchange to post up the time my ships reached New York from Singapore. They were always exactly on time, and I got heavy business when this began to be observed.

"I found that mail ships were passing through the Suez canal with precedence over freight ships, which had to stand in line at the side. After considerable maneuvering I got a contract to carry mail out of Singapore free in order to enjoy this canal privilege and speed up our service. I got a similar contract in Italy for that purpose.

"The success of this round-the-world service is particularly gratifying because it is a victory in the face of what virtually the whole shipping world predicted would be a failure. It is something that never has been done, but I felt that my plan was feasible.

"The operation of this globe-girdling line has brought a vast amount of returns to California business men, for they have gone out over our route and developed business which hitherto was nonexistent. The reliability of the service has done much to establish California and its products in the Orient and the Far East."

Despite his advanced age, Captain Dollar is in his office at 20 minutes to nine every morning. He has made five trips around the world and 35 trips to China. On these trips he is always accompanied by Mrs. Dollar. In China the Dollars are as well known as in this country, and Captain Dollar is generally credited with being one of the most influential and best-known Americans in the Orient.

Captain Dollar says no one ever suffered from hard work. "All I ever gained in worldly fortune," said he, "is attributable to hard work, and I have enjoyed it. If you work hard and enjoy it you'll get ahead. People with this spirit can't miss."

Dollar's sons are associated with him in his business. R. Stanley Dollar is vice president and managing director of the Dollar Line. Another son, Harold, formerly was stationed at Shanghai, but now has headquarters in San Francisco. Melville Dollar is head of the Canadian Dollar Company, with headquarters in Vancouver. But Captain Dollar is still the active head of all the companies.

He sits today, when he is in this country, a fine old gentleman with a weather-beaten face, in a suite of offices on the tenth floor of the Dollar Building in San Francisco. This tenth floor is fitted up to resemble a ship to the minutest detail. But Captain Dollar has never been to sea as a sailor—only as owner.

"I don't know why everybody calls me captain," said he. "I'm not a captain."

Indeed he looks like a cross between a Yankee skipper and an old type Calvinist minister. When someone asked him whether he wasn't a Yankee he grinned. "How," he exclaimed, "how could I be anything but Scotch to have made my success?"

How, indeed, could anything but Scotch thrift have done these things?

Let Work Begin

The foreman of an enginehouse on the Missouri Pacific looked up from his work one morning in the spring of 1923 to see a group of men coming toward him from some official cars on a siding nearby. A big man headed the line as they walked in single file. Reaching the enginehouse, the leader smiled at the foreman and offered his hand.

"My name's Baldwin," he said, pleasantly, "how's your enginehouse?"

The new president, grasping the grimy hand of the enginehouse worker gave to that man two things, recognition, and responsibility. Not "the" enginehouse, but "your" enginehouse!

The incident is exactly typical of L. W. Baldwin, the man, and of how he has been able to arouse in others so much enthusiasm and so much good will that they can almost work miracles. "Let Work Begin" Baldwin, the men called him, as a play on his initials when he appeared on the Missouri Pacific after long and noteworthy service on the Illinois Central.

Mr. Baldwin's background is not especially noteworthy. He is the youngest of a large family whose home is in Anne Arundel County, Maryland. His father was typical of the prosperous country gentleman of that section, a few generations ago, a landowner and planter, merchant and scholar. In his early boyhood he dreamed of railroads, as some boys dream of being a motorman, fireman or lawyer, and these dreams were encouraged by an elder brother. Nothing especially spectacular about this part of the tale. Thousands of boys have lived such dreams. In this case, however, the boy set out to make his dream come true.

After his graduation from Lehigh University in 1896, Baldwin went to work for the Illinois Central. From a position in the engineering department he made the grade step by step until he became vice president of the road. The World War gave him a wonderful opportunity and he measured up to it. As assistant regional director in the Allegheny region, it was he, more than any other individual, who straightened out the snarls and tangles which railroads got into in one way or another at that time.

President Baldwin Congratulates Charles Seymour, Retired Engineer, Having 54 Years' Service to His Credit.

In the language of modern youth, "he had to be good to get away with it," for he had control of and operated the railroad terminals at New York, Philadelphia, Baltimore and the other important Atlantic seaboard ports where the movement of troops and supplies presented problems never before attacked by American railroaders. The lines he directed served both the bituminous and anthracite fields, a responsibility he carried for keeping the home fires of industry burning.

This is the type of man then who went to the Missouri Pacific in 1923 and assumed the task of rehabilitating the road and re-establishing it favorably in the mind of the public. In five years he has literally compelled the world to regard with amazed admiration the property that was a national joke when he took over the task of directing its destinies.

What, putting it concretely, was the grand result? It would take pages to tell in words, but figures are mightily convincing, and these appear to the best advantage in the report for the year ended December 31, 1928. This report showed a net income of $9,512,690 after taxes and charges, equivalent to $13.25 a share earned on 718,001 shares of preferred stock, on which there is an accumulation of unpaid dividends. Compare this net with $4,401,196 or $6.13 a share on preferred and 98 cents a share on common stock in 1927 and you realize that in addition to knowing how and when and what to do in his job Mr. Baldwin was singularly fortunate in having with him a staff of brainy officers and loyal hard-working employes. All of which leads to the belief that one of these fine days the stockholders are going to emit loud and unusual evidences of joy because the Missouri Pacific will be paying dividends into their waiting pockets.

What the dear people think of all this was shown a while ago when Henry Allen's paper at Wichita, The Beacon, said that when Mr. Baldwin went to the road in 1923 as president he found a vast property, serving a great and developing territory, a property just barely held together by the employes who believed in it and had been, all of their lives, hoping and dreaming of the day when it would come into its own. Weakened by unwise management; its very life blood sapped by 2-cent fare laws and similar legislation and regulation; punished unmercifully during the period of federal control during the war and immediately following; and lastly suffering horribly from the shopmen's strike of 1922, the task of rehabilitating the Missouri Pacific and re-establishing it favorably in the public mind called for a super man.

It would be difficult to imagine, in-

Maurice Nall, Representing All Boy Scouts on Missouri Pacific Lines, Presents a Bronze Statue of a Scout to President Baldwin as He Rises to Speak at Dallas.

deed no one except his own chef ever will know how many bath-tubs of coffee Mr. Baldwin drank in achieving this fine result. Close friends say he needs only five or six hours of sleep in 24 which leads to the belief that he might qualify for an editorship some day.

However, you are at liberty to speculate and guess all you please over the ways he used and still uses in his good work. You'll never get the prescription from Lewis Baldwin. Indeed he doesn't seem especially pleased over the suggestion that he has any secret formula. All he does is just what any other sensible and efficient business man or railroad executive would do; standards of good conduct, good business practice—take it or leave it—that is all there is to the plans by which the Missouri Pacific got back into good company.

There is much of the athlete about Lewis Baldwin. Like his eldest son who recently was graduated from Princeton after being described by Coach Roper as "the greatest guard he ever coached." L. W. B. was a famous football player while a student at Lehigh University. No one ever met him without being impressed with his bigness, and every one that ever met him must have been equally impressed with his plainness. Standing six feet, he weighs 225 pounds. Fifty-four years have gone over his wide shoulders, and they have left no mark of wear. He doesn't believe a man can get very far without the help of other people. It is curiously interesting to see how often in going back over his experiences, he speaks of someone who has helped him in some way—his elder brother—a teacher or a business associate, and particularly his mother.

The Murals of Clarkson Dye

By Tom St. Brissac

The selecting of Clarkson Dye by the Maddux Air Lines to execute the mural paintings in that company's Hollywood office was a happy choice. We often wonder why it is that the architects and designers of imposing interiors so often fail to give adequate consideration to mural effects as pleasing adjuncts. One of Dye's paintings is reproduced this month on the cover of this magazine.

Here the artist has admirably carried out a scheme wherein a sense of air consciousness is created, as if one viewed beautiful vistas far below from great heights. Some years ago the International Studio characterized Mr. Dye's work as "an evident search in nature for elusive moods; as if scorn were accorded his subjects in any state but that of sunny smiles, of outbursts of passion or great restfulness." I think that unutterable peace and sheer beauty, the triumph of man over the eagle's domain in the skies, that these were the artist's aim.

There are four panels in what is now referred to as Hollywood's most beautiful business office. A large back panel represents an airplane at sunset flying over the vast spaces of the San Bernardino Valley, with sunlit mountains in the far distance. Two smaller panels, one of the desert and the other looking down on the tortuous windings of the Ridge Route and mountain gorges far below are excellently rendered. In the center is a great aerial map of the Southwest. It embraces California, Nevada, Arizona and part of Mexico, with El Paso the eastern limit. This huge panorama is 25 feet long. It illustrates the advantages of direct air transportation in conquering great distances.

Mr. Dye is California born, the son of early pioneers. His art instinct has left a distinct and favorable impression upon this community. While best known as a painter of the West, his beautiful Flemish tapestries for Mary Pickford in "Dorothy Vernon of Haddon Hall" and other art work in the film studios are outstanding examples of his versatility.

Fine

The speed limit in certain parts of Pekin, China, is 15 miles an hour. Violators of this law are beheaded forthwith in many cases and their heads hung in cages on the signboards as warning to other reckless motor drivers.

Hiram C. Gosling, 58, engineer on the Cog railroad up Pikes Peak who had made the trip 9,280 times in his 33 years' service, died April 4. Gosling was known throughout the world as nearly all who made the trip had to ask him how that "funny looking engine" worked, and he always was ready to explain it.

Silence is a true friend who never betrays.—*Confucius.*

Herbert Photo.

Grand Central Air Terminal at Glendale, Dedicated Recently. Here Will Land the Planes Coordinating With the Santa Fe Railway, Beginning July 1. This Already Is the Terminal for Pickwick Airways and the Maddux Air Liners. Largest Air Field in Metropolitan Los Angeles.

Santa Fe Air-Rail Service July First

Coast to Coast 48 Hours

By H. W. Winfield

THE READINESS with which the railroads of the United States have grasped the newly developed modes of transportation and made them adjuncts of their own service is demonstrated again in vivid fashion by the current expansion of rail-air service. The use of the airplane on coordinated schedules, and even on partly owned routes is declared by eminent railroad men to be the latest phase of the movement which began with the use of motor buses and trucks in connection with rail service.

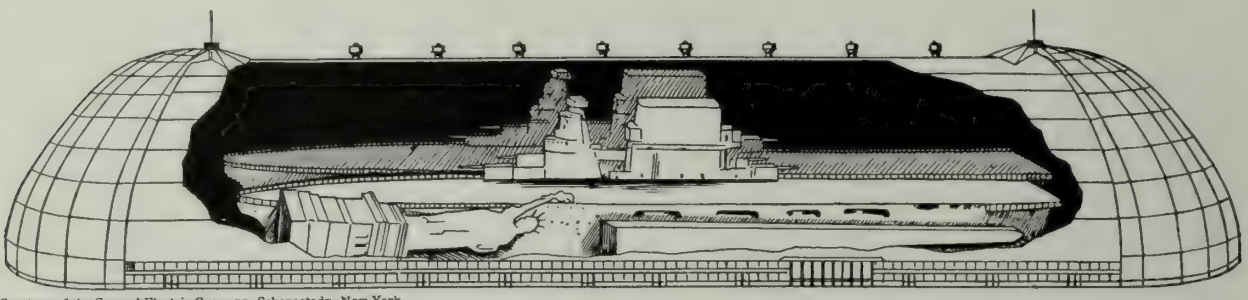
The beginning of coast to coast air-rail service via the Pennsylvania Railroad, the Atchison, Topeka & Santa Fe and the Transcontinental Air Transport, Inc., July 1, has brought into the foreground the extent of present railroad and airplane coordination and the outlook for future development in this newest field of transportation.

Writing in the annual report to stockholders of the Pennsylvania issued in April, President W. W. Atterbury said:

"The airplane will not measurably compete with the train, steamship or automobile for daily transportation needs, but it will stimulate a demand for very fast transportation at necessarily higher rates than those charged by the railroads and other forms of transport.

"With the vast distances to be covered in the United States undoubtedly there are many opportunities for the successful operation of the airplane to meet extraordinary demands."

That these demands already exist to some degree is indicated in a list of railroads now coordinating rail and air service given by the Aeronautical Chamber of Commerce of America as follows: Great Northern, Northern Pacific, Chicago, Milwaukee, St. Paul & Pacific, Baltimore & Ohio, Atlantic Coast Line, Seaboard Air Line, Texas & Pacific, Rock Island Lines, New Haven, Illinois Central and the Missouri Pacific. In addition to these the New York Central is reported to have a definite co-



Courtesy of the General Electric Company, Schenectady, New York

Here We Have the World's Largest Hangar, Soon to be Erected at the Municipal Airport of Akron, Ohio — 389,000 Square Feet of Space Unobstructed by Supports of Any Kind.

ordination of schedules at Cleveland and Chicago, the Pennsylvania and Santa Fe have active developed plans, and the Southern Pacific is reported considering some use of planes.

The total number of air miles en route now used by planes in conjunction with the railroads is estimated at 10,000 to 12,000 miles. On these routes between 300 and 400 planes of all types are in service. Of these about 50 are of the tri-motored 14-passenger type. The lines already carry express and mail as well as passengers, and make daily flights on practically all the lines.

Between Chicago, Minneapolis and St. Paul the Northwest Airways during the past year have been carrying passengers in both directions on daily schedules to make connections with the Great Northern, Northern Pacific, St. Paul and B. & O. trains.

The Illinois Central coordinates with the Robertson Aircraft Corporation in the maintenance of flying schedules between Chicago and St. Louis.

The Texas & Pacific uses the Standard Air Line from Los Angeles to El Paso. The Missouri Pacific entered the field with purchase of a single plane but has not expanded its service.

The New Haven announced recently that its trains from Boston would connect via the Florida East Coast to Miami with planes of the Pan American Airways operating to the West Indies. Trains of the Seaboard and the Atlantic Coast Line also make connections with the Pan American planes.

The New York Central, although it has not made any public announcement, is reported preparing now to coordinate its schedules with the Boeing Air Transport for flights west of Chicago, and with the Universal Aviation Corporation from Cleveland to Chicago and Minneapolis.

But perhaps the most significant development so far is the plan of the Transcontinental Air Transport, Inc. The aim of the schedule via the two railroads and the planes is to provide 48-hour service from New York to the Pacific Coast. The traveler will fly by day and ride in Pullman sleepers by night, covering the total distance in about half the time required by all-rail service.

To insure the safe and rapid development of this plan the Pennsylvania has purchased a 10 per cent interest in the company. Elaborate plans have been made for safeguarding the flights. Weather surveys, lighting of fields and all technical details of planes and equipment are being carefully studied.

Already the service has been named "The Lindbergh Line," a significant change from the nicknames of the older transportation routes such as "Monon," "Katy," "Cotton Belt" and "Nickel Plate."

J. E. Gorman, president of the Rock Island Lines, now visiting in Pasadena, said a few days ago that he considered combined air and rail service thoroughly practicable. "I believe," said Mr. Gorman, "we are soon to have one-day air transport line from Kansas City to the Pacific Coast. My company has made no bid for exclusive service to the passengers who will use this line, but I feel sure that we shall obtain our share of the passengers. We have made no definite arrangements to supplement our service with air transportation, but we are considering a number of offers."

The Santa Fe air headquarters, it is announced, will be in Los Angeles, with the service operating from the Grand Central Air Terminal, Glendale, where the company will have its own hangars and shops.

Passengers will be transported, according to the schedule, by air to Clovis, N. M., thence by Santa Fe rail service to Waynoka, Okla., and from there by air to Columbus, O., by way of Wichita, Kansas City, St. Louis and Indianapolis, from all of which points connections will be made by air or rail to other points and destinations. Both east and west-bound planes will make rest stops at convenient and important points. Arrangements are being made for the sale of through tickets at all Santa Fe ticket offices.

The World's Largest Hangar

The U. S. Airplane-carriers Saratoga and Lexington—the two largest ships afloat—could rest, without their masts, side by side inside the airship hangar soon to be erected at the municipal airport at Akron, Ohio; and the Washington Monument and the Statue of Liberty, end to end, could lie alongside them and there still would be room. This immense hangar will be used in the construction of the first of two gigantic airships for the United States navy. It will be 1,200 feet long, 360 feet wide and 200 feet high, and will cost $2,500,000. The General Electric Company says that not only will this hangar be one of the largest buildings in the world, but it will be the largest building in the world without pillars or posts to hold it up. Its shape will be that of an enormous elongated archway. It will have what is said to be the world's largest single unobstructed floor area—389,000 square feet — large enough to house six miles of freight cars. This floor will have to be level, and will be made of wood on a special foundation.

Speeding Up Air Mail

Every part of the country will be directly benefited in the transfer of its mail by the changes made effective May 1 on the 2,680 mile transcontinental air mail route

Keystone Photo.

One of the Giant Ford Tri-Motor Passenger Planes of the Maddux Line Flying Out of Los Angeles Daily, and Giving Remarkably Fine Service.

linking the Pacific and Atlantic Coasts.

Mail over the main artery, starting, is scheduled to leave coast terminals after the close of business and be delivered on the other coast early the second morning in time for the first delivery. Only one business day will be lost in the transfer of coast to coast mail. Its receipt will be speeded up 12 hours over present day schedules, due to the completion of lighting between Salt Lake City and the West Coast, which will permit planes to fly at night over the entire distance. Previously, due to planes being forced to fly the extreme western end of the transcontinental in daylight, mail has arrived too late in the afternoon on both coasts for delivery that day and has been held over until the next morning.

Cities off the main route will also gain many hours in the transfer of the mail both east and west. At present there are 19 connecting lines, and their schedules will be arranged to provide the closest possible connections with the transcontinental.

The new Omaha-Kansas City-St. Louis air mail route opened on May 1, brings speedier service to both southwestern and southeastern cities. Mail from the West for Texas and Oklahoma, which has previously gone into Chicago, will be transferred at Omaha over the new route making connections at Kansas City with the present Chicago-Dallas line. Letters for south-eastern states will go from Omaha direct to St. Louis to connect with the Chicago-Atlanta route at the latter point.

Albany-Schenectady and five other Upper New York state cities will be on direct one-day service with the West Coast through schedule changes connecting with the transcontinental at Cleveland. New services on the Pittsburgh-Cleveland route will be started so that Pittsburgh, McKeesport and other western Pennsylvania cities will meet the transcontinental at the Cleveland terminal.

Flying time of the mail planes serving Washington, Oregon, Idaho and Montana will also be changed to benefit mailers in these states.

It Was Sixty Years Ago

(Continued from Page 14)

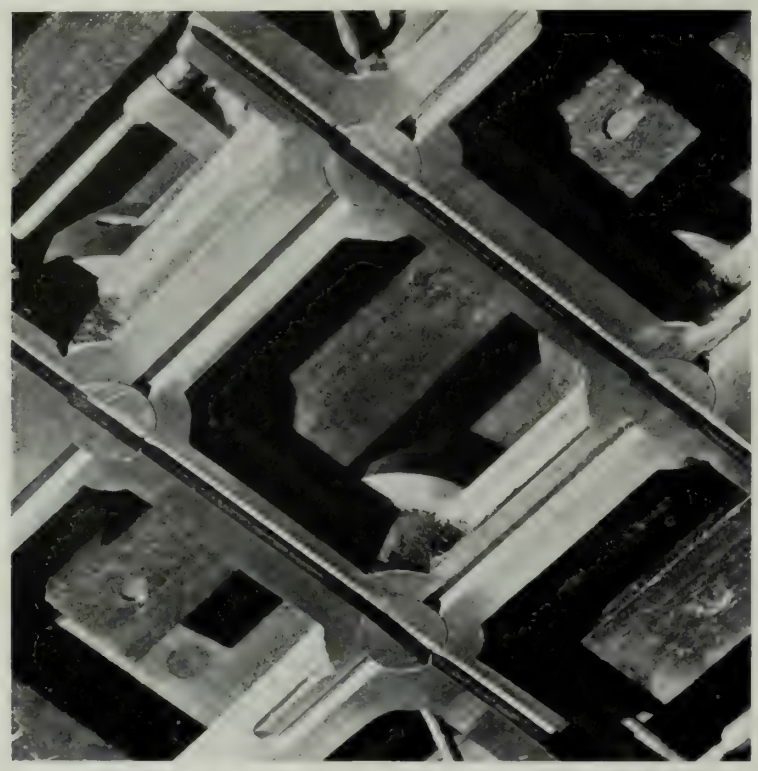
will there be such a spirited race for railroad supremacy as the one that inspired the Central Pacific and Union Pacific to such marvelous feats in those early days.

The building of the Pacific Railroad was the biggest job in the world at the time. It stands today as a lasting tribute to American courage and enterprise. The Chinese helped, but it must have been the Irish who put the job over on time.

Editor's note:—The photographs used in this article are from Southern Pacific files and from the Historical Museum of the Union Pacific, through the courtesy of President Gray. All these Union Pacific pictures were taken by Charles Savage, official photographer, employed by the company in construction days. Important assistance in gathering or confirming historical matters was given generously by John Ford of the Fox Film Corpn., who directed the making of The Iron Horse, the famous motion picture portraying the building of the Union Pacific. In gathering the material for the article it was discovered there were several versions of the old railroad construction song, "Drill, Ye Tarriers, Drill." Mr. Ford's version finally was adopted. Another question in dispute has to do with blasting: Some persons say the men used black powder. Others declare dynamite was the force employed. Dynamite was patented in 1867 by Alfred Noble, but it is scarcely possible it had reached this western country in time to be used in blasting a way through the Sierras.

Regard Human Life

The safety movement is an endeavor to get men everywhere to a certain exalted notion regarding the value of human life, and upon that notion or philosophy to regulate their own conduct.—*Trollicar Topics.*



Whalen's Continuous Rail Crossing Designed to Lessen Noise, and Give Smoothness.

A New Continuous Rail Crossing

THE first continuous rail crossing giving car wheels an unbroken passageway is soon to be installed at the Southgate crossing of the Southern Pacific and Union Pacific tracks. Permission has been given by the two roads for the trial installation, which, if successful, is expected to be followed by the adoption of the new type crossing generally, with a resultant saving of millions of dollars in equipment and the elimination of crossing noises to the benefit of property owners and the public.

The trial crossing is to be installed by the Continuous Rail Crossing Corporation of Los Angeles, which now holds patents in this country and Great Britain. Others are pending in all other foreign lands of importance. W. H. Whalen, a widely-known railroad executive, is president of the company.

Mr. Whalen, who started his railroad career in 1881 as a journeyman boilermaker with the Chicago & North Western, retired to the Southern Pacific pension roll at the close of last year. From 1911 to 1925, he was superintendent of that road's Los Angeles division and from then until his retirement served as special representative of T. H. Williams, assistant general manager of the Southern Pacific. He says the continuous rail crossing will last more than three and possibly five times as long as the ordinary crossing of today, will do away with the noise nuisance and will save millions of dollars in maintenance costs.

Mr. Whalen is the inventor of a track sprinkler also, to eliminate dust from transportation. The first installation of the sprinkler was made on the Southern Pacific in 1923. It now is in use also on the Union Pacific, Chicago & North Western, the Rock Island and the Canadian National railroads, and other roads are negotiating for its use. The American Locomotive Co. and the Baldwin Locomotive Co. have arranged to use the track sprinkler as standard equipment on their locomotives.

Such Monkey Business

When Southern Pacific No. 9 left Ogden, April 18, there were 14 monkeys in a cage on one of the baggage cars. When the train reached Lakeside there were only thirteen monkeys in the cage while the fourteenth, not satisfied with the manner in which the train was proceeding, was out doing its best to help.

The monkey scampered over and under cars and the speed maintained by the train had no terror for the animal. For 200 miles the monkey played tag with the crew. Then at Carlin the animal left the train and played games with Carlin residents. Most of the population turned out to help capture the truant, and it took all of them to do it.

World War Transportation Corps To Meet

During the World War the corps of engineers had the responsibility of maintaining and operating part of the railroads and other means of transport facilities in France and elsewhere. The work was under the supervision of General W. W. Atterbury and he was assisted by officers and men recruited principally from the railroads in this country. After the war these men decided to form an organization to perpetuate the associations and friendships made during the time they were devoting their efforts to the movement of troops, materials and supplies, and of providing the facilities to insure such movement. The result was the Transportation Corps, A.E.F. Association. This organization is composed of officers who served in the military transportation service both on land and on the seas during the World War, and consists of railway men active at this time as well as those who subsequently became associated with other lines of industry but who contributed to our transportation achievements in France and elsewhere. General Atterbury is the president of the society and S. M. Felton, who had charge of the purchase and production of military railway supplies for our forces, is the vice president.

The Transportation Corps, A.E.F. Association, will hold its tenth annual meeting in Chicago, Saturday, May 25. Active members of the association always plan to attend these gatherings to renew the friendships made during 1917 and 1918. Those who have not attended these meetings have missed a rare treat. Officers attached to the military railroads abroad, the transport service, or with the military railways on this side, either in the army or navy, are cordially invited to attend the meeting and dinner which will be held at the La Salle Hotel, Chicago.

Further particulars may be obtained by communicating with Colonel C. L. Hinkle, Room 1123 People's Gas Building, Chicago.

Roller Bearing Street Cars

Two cars with Hyatt-Melchor roller bearings, the first used on the Pacific Coast, went into service one day last month on the Hollywood lines of the Pacific Electric Railway. Nothing finer or more comfortable could be imagined in such transportation. Eight other cars of a similar type, following installation of air and control equipment at the Torrance Shops of the railway, will be put into service at the rate of one every four days until the entire ten are completed.

The new roller bearing feature with which the new cars are equipped is the latest development in electric street car improvements. Contributing very materially to quietness of operation the innovation contributes to faster acceleration, saving of power and reduction of maintenance expense. Another outstanding improvement embodied in the new cars is all-leather seats deeply upholstered, doubtless the finest type seat yet introduced in street car service on the Pacific Coast. The cars cost $21,800 apiece.

Among other improvements is the latest type of improved air operation of door mechanism. This mechanism is designed to eliminate the necessity of go and stop signals from conductor to motorman, the closing of door registering a proceed light signal to motorman in charge. Doors cannot be opened before the car comes to a stop, and power cannot be applied until the doors are closed. These features practically make it impossible for passengers to have step accidents. Seats for 65 passengers are provided and 36-inch aisles permit the maximum of comfort for standees during the heavy hours of travel.

Four of These Automobile Inspection Cars Have Been Bought by the Santa Fe.

An Automobile Rail Car for Inspection Trips

When an automobile train, the latest type of inspection cars for railroads, rolled into the Denver union station with a group of Santa Fe officials, not long ago, the red caps and other employes rubbed their eyes in astonishment. The vehicle, one of the four manufactured by the Buda Manufacturing Company of Chicago for the Santa Fe Railroad, has all the appearance of an automobile bus, with the exception of the steel wheels, which resemble the wheels of a small locomotive. The car is equipped with an all-steel body capable of seating 12 persons comfortably. It has a wheelbase of 150 inches and is equipped with a 115-horsepower motor with a maximum speed of 60 miles an hour. One of the cars has been assigned to each of the four divisional districts of the Santa Fe. The vehicle, while on the road, operates under train orders and the man in charge receives reports the same as a train conductor.

The Safety Section Meets

Nearly 700 railroad men of one kind or another, all interested in safety, assembled at Indianapolis April 23, with D. G. Phillips, chairman, as presiding officer. Mr. Phillips is superintendent of safety for the Wabash Railway. Addresses were made by the chairman, discussing the safety record of recent years; by R. H. Aishton, president of the American Railway Association, on the same subject, with a special request for a further reduction of 50 per cent in preventable accidents between 1923 and 1930, the result to be reported in next year's meeting; by H. R. Safford, executive vice president of the Gulf Coast Lines and the International-Great Northern; H. A. Worcester, vice president of the Big Four; J. W. Newell, vice president of the Wabash, and W. H. Cameron, managing director of the National Safety Council.

The Pacific Electric Railway's New Street Cars On the Hollywood Boulevard Line Are Equipped With Hyatt-Melchor Roller Bearings, New Door Engines, Leather Upholstered Seats, and Metal Window Sash. These Cars Cost $21,400 Apiece. They Are Easy Riders, and Less Noisy Than Ordinary Cars.

These Black Lines Show the Freight Truck Lines In and Out of Oklahoma City.

How Motor Service Aids Railroads

THE IMPORTANCE of motor car transportation as an adjunct of both the passenger and freight service of the railroads is indicated in the annual reports of the railroads now beginning to appear. Edward G. Buckland, chairman of the New York, New Haven & Hartford, in his annual report said that the motor coach lines operated by the New England Transportation Company, a New Haven subsidiary, showed an increase in net income over the previous year, due largely to a continued growth in traffic.

Passenger revenues of this New Haven subsidiary in 1928 were $2,864,819, an increase of $835,064 over the preceding year, while the net income increased $53,259 to a total of $108,251 for the year.

During the year 11 new lines were added to the company, bringing the total to 58 lines operated, including five jointly operated.

George Hannauer, president of the Boston & Maine, also gives consideration to the subject of motor transportation in the annual report of the road. The president says:

"The operations of the Boston & Maine Transportation Company show a net loss for the year of $21,478 after charging $89,870 for depreciation on equipment. The transportation company's accounts, however, contain no credit for savings to the railroad through the substitution of highway service by the transportation company for that operated by the railroad at a substantial loss. The operation of trucks has also made possible some operating savings on the part of the railroad.

"Both bus and truck operations expanded during the year. The coordination of trucking operations with rail freight movement has resulted in many improvements in service to the shippers with consequent increases in tonnage."

Use of bus transportation by the railroads is by no means confined to the eastern section of the country. It has been found of great importance in the sparsely settled sections of the West as well as in the urban areas there.

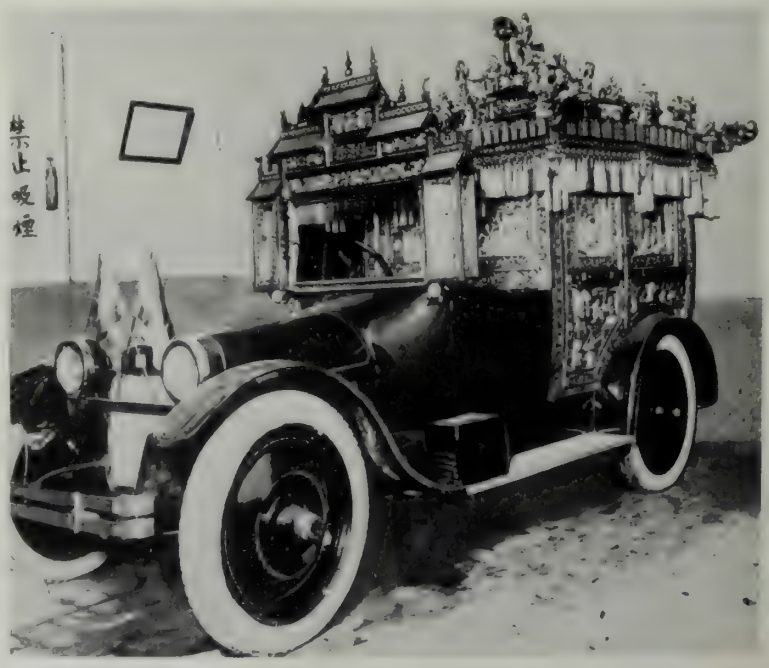
A new law has been enacted in Texas placing motor truck lines under jurisdiction of the railroad commission, and it is expected that the railroads of the state will begin the operation of motor trucking systems. The railroad commission in Texas held recently that the carriers could operate motor truck lines running parallel to their tracks.

From a railroad standpoint the Texas situation had become acute, the roads being obliged to reduce rates in order to compete with the truck lines which they may now take over. It has been found that the operation of a motor car on the road is far cheaper than the operation of a motor car on the rails, so that railroad people hold their only means of competing with the growing road traffic is to go into the business themselves.

That the entrance of railroads into the field of competition should meet with some objection from owners of existing bus lines was to be expected. During the last week the Interstate Commerce Commission refused to decide on the right of a railroad to compete with a bus company. The commission dismissed the complaint without action after determining that there was no jurisdiction conferred upon it as a regulative body to find the practice unlawful. Warning was issued to the railroad, however, to make joint bus and rail passenger rate publication in lawful form.

170 Cars in This Train

With Engineer Edward T. Tarpley, of Los Angeles division, at the throttle of Engine 3757, the longest train on record was pulled out of Imperial Valley for Yuma early last month. The train consisted of 170 cars of lettuce and exceeded by twelve cars the record for train length set in 1927.



—P&A Photo.

A Modern Bridal Car in China Designed for Those Who Can Afford Such Luxury.

CHASE Velmo

ADDING THE ELEGANCE
OF THE HOME TO
RAILWAY COACHES

TRAVELERS EXPECT *more* Comfort *and* Luxury than ever before...

VELMO MOHAIR has no equal in filling this expectation.

VELMO MOHAIR truly expresses luxury yet it is most practical.

VELMO MOHAIR provides far more mileage than other fabrics of like calibre.

VELMO MOHAIR is made up to a standard and not down to a price.

Made by SANFORD MILLS
SANFORD, MAINE—*Selling Agents*
L. C. CHASE & CO., BOSTON
New York Detroit
San Francisco
Chicago

These Things Are Never Forgotten

A writer signing himself an "Old Stager" says to the New York Sun:

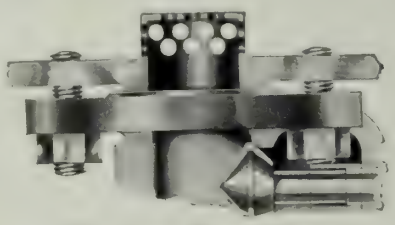
Your editorial on "Accommodation Trains" reminded me of an experience I had back in 1906. I was going from Buffalo to Cleveland on the old Nickel Plate road. After leaving a station I heard voices back of me and turning I saw the conductor talking to a woman. Not wishing to seem too curious I turned back to my magazine. The train stopped.

Shortly afterward I heard the end door of the coach slam, and turning again I saw the brakeman hurrying forward to the woman. I heard him ask "What was it?" and on her replying he handed her a purse. He evidently had run back to the station where she had forgotten it when getting up to take the train. We arrived in Cleveland on time.

A New Blow-Off Cock

The standard and best location for locomotive blow-off cocks, whether mounted with or without sludge removing pipes, is on each side of the fire box near the front or low corners, about one row of stay bolts above the mud ring. The Bird-Archer Blow-Off Cock, which has been adopted as standard by such trunk lines as the Union Pacific; Chicago & North Western; Chicago, Milwaukee, St. Paul & Pacific; Oregon Short Line; Los Angeles & Salt Lake; Canadian Pacific; Chicago Great Western and many others, is arranged with the valve stem at right angle to the side sheet, calling for clearance allowance of approximately ten inches on each side of the boiler. Many of the new locomotives recently designed have, for the purpose of obtaining largest possible grate area, included fire boxes so wide as to approach the limiting side clearance of the railroads. This makes it of paramount importance that a blow-off cock be used which extends outwardly from the fire box for the minimum possible distance.

With these requirements in mind, a new design of the Bird-Archer Blow-Off Cock is now made available. As shown in the illustration, this blow-off cock, while retaining all of the desirable features of the old types, is arranged with the valve stem mounted parallel to the side sheet. It was possible in this design to shorten the side clearance requirement for the blow-off cock allowance to less than five inches. This includes the allowance for the fitting of the joint ring in mounting. This type of blow-off cock is admirably adapted for mounting with internal sludge removing pipes, such as are furnished with the Bird-Archer Sludge Removers. Where sludge removing pipes are not used a joint ring strainer of the Bird-Archer standard design is furnished to prevent obstructions which might interfere with the closing of the valve. As with all Bird-Archer Blow-Off Cocks, this narrow clearance type may be ground in under pressure without removing from the boiler, and in addition the valve and stem may be removed from the blow-



The Latest Blow-Off Cock.

off cock body without breaking the ground joint mounting on the boiler. A plug is provided for this purpose.

A still further advantage in this type of blow-off cock is the fact that it can be used to blow from two boiler connections at the same time. This may be arranged by removing the brass inspection plug and fitting a pipe connection thereto. The lever, bushing, packing gland, and the valve and stem unit are standard and interchangeable with other blow-off cocks of Bird-Archer design.

Rough on Kitty

A tom cat's involuntary and forbidden trip from Rawlings, Wyo., to Shreveport, La., with his 5-year-old mistress was halted at Kansas City by a telegram from Rawlings.

The ticket agent at the station received a telegram from J. G. Atwood, railroad man at Rawlings, to look into his wife's trunk, consigned to Shreveport, as he thought the family cat might be in it.

The trunk was found and unlocked. A cat jumped out.

The small daughter admitted she was responsible.

"You see," she said, "mother did not want me to take Tom and I thought that was the only way to get him to Shreveport."

Skyscrapers and Congestion

Skyscrapers as advertisements are becoming so common that their value is already questionable. The whole trend of city development, with the automobile—and presently the airplane—is toward scattering the huge ant heaps, because they cause congestion which is 75 per cent unnecessary, and because they require such auxiliary investments in transportation, to move people about in unnecessary ways, that the public transportation cost is rapidly becoming prohibitive. Within 25 years the skyscraper sections of New York and other cities will disappear almost as fast as though they were bombed in the next superwar.—*James H. Collins in The Magazine of Business.*

Dispatching Trains in Poland

The Associated Press reported December 20 that two train dispatchers at Warsaw had a dispute as to which freight should have the right of way. Neither would give in. The result was that two trains met head on. Four trainmen were killed and 33 cars smashed.

Recent Court Decisions

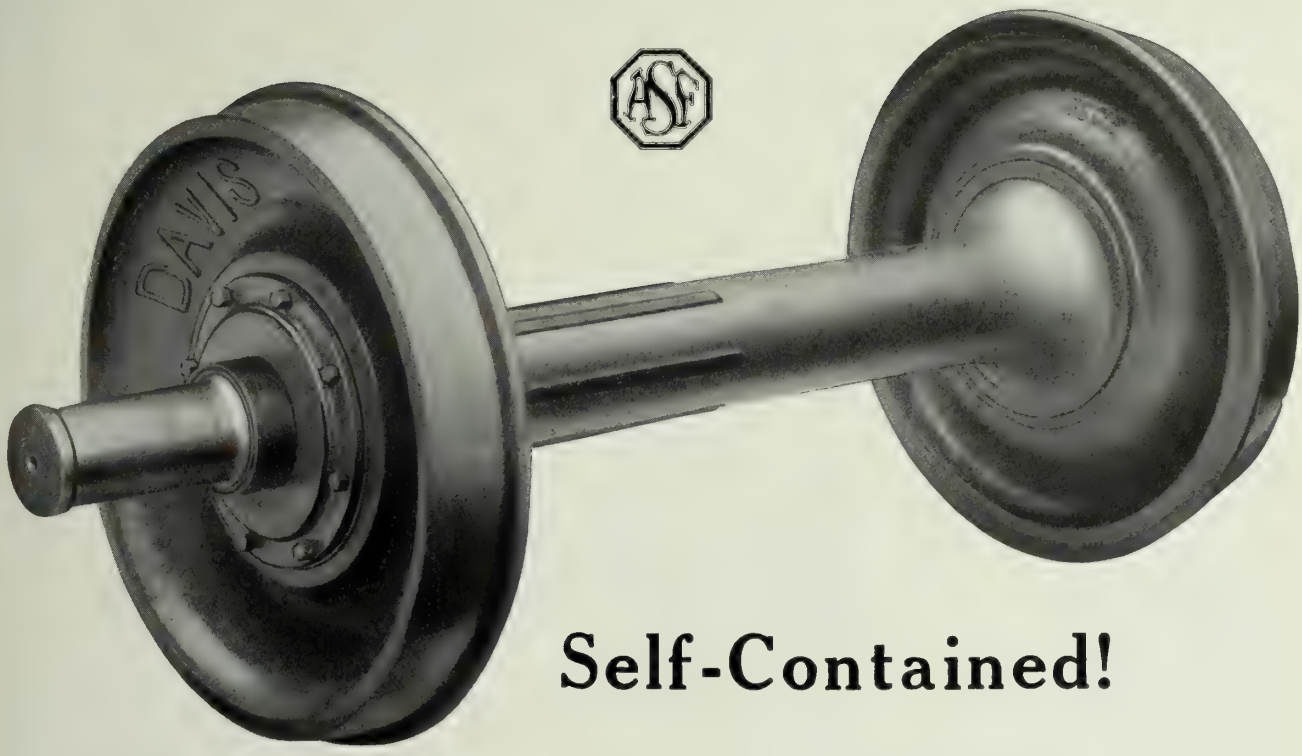
Near Minneapolis, Minn., recently, a truck and a fast train reached a grade crossing at the same moment. The truck was carried down the track about 100 feet and wrecked. Just as the driver crawled out of the mass a traffic cop stepped up and handed him a summons for not obeying a stop signal. It would be diverting to know just what the driver said.

Some time ago I asked a professor in one of the oldest and largest eastern universities what his institution did for the thousands of young persons who passed their four years there. His answer, after some deliberation, was "We turn out, as far as I can see, a low-grade standardized product, like Model T Ford cars, with just about as much thinking capacity."—*James Truslow Adams.*

One of the great crimes which shorten life is indifference. As one loses interest in his church, in his political party, in his club, in his friends and acquaintances, he dries up and the grave claims one whom no one wants or laments. The two most fatal phrases and the most common are: "What's the use?" and "Why should I?"—*Chauncey M. Depew.*

I try to have no plans the failure of which would greatly annoy me. Half the unhappiness in life is due to the failure of plans which were never reasonable, and often impossible.—*Ed Howe.*

American Steel Foundries Roller Bearing Unit



Self-Contained!

For more than a third of a century the American Steel Foundries have specialized in the development and manufacture of railroad truck parts, engaging in extensive research to perfect their products.

The experience thus gained was applied to design a practical roller bearing application — a unit mounting the bearings in the hubs of the wheels—a self-contained unit applicable to old equipment — a unit employing various makes of roller bearings—a unit that is now demonstrating its value.

AMERICAN STEEL FOUNDRIES

NEW YORK CHICAGO ST. LOUIS

Fairmont M22 Paint Spray Car

THE SAVING in labor cost with spray painting equipment has resulted in its rapid adoption by railroads. Operating conditions have called for a different type of unit than the hand truck or skid-mounted outfits used by paint contractors. The railroad paint gang travels in several outfit cars which house all supplies and equipment. Sometimes the gang has a motor car and trailer for hauling the paint spray equipment consisting of an air compressor, air storage tank, gasoline engine and paint pressure containers.

Railroad men were quick to see the desirability of fitting paint spray equipment to the same motor car that was otherwise needed to haul the trailer and extra compressing engine. This saved the cost of one trailer and one engine. The small number of men in the paint gang then had only one car instead of two to handle on and off the track. Many paint gangs have been getting along without any motor car, or perhaps only a hand speeder to run out and paint whistle posts. This arrangement wasted much valuable time, particularly when the outfit cars were set out on branch lines having only one train a day. Lack of a good motor car kept such gangs idle nearly a whole day if they happened to finish after the one train had left. The gang with a motor car runs down to the next job and works all day, running back at night.

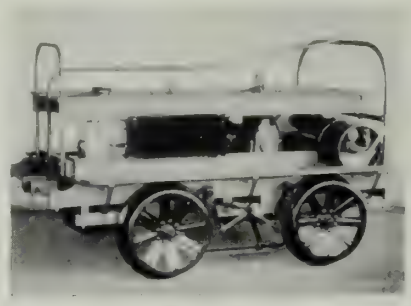
In response to a widespread demand, Fairmont Railway Motors Inc., of Fairmont, Minn., have been building motor "compressor cars" to meet these conditions. The latest model M22 paint spray car as a motor car corresponds closely in appearance and capacity with the well known Fairmont M22 Standard section car, but has a specially designed frame. The M22 is equipped with a two cylinder single stage air cooled Curtis No. 80 duplex compressor with a displacement of 19.90 cubic feet of free air a minute with the engine governor set at 550 r.p.m. This capacity is ample for two guns, but if more air is desired the engine governor may be changed quickly without tools to give a speed of 700 r.p.m., which increases the compressor displacement to 25.35 cubic feet of free air per minute.

Safety Order Postponed

The Interstate Commerce Commission has issued an order on petition of the American Railway Association, postponing the effective date of its order of February 21 requiring the railroads to equip their locomotives with mechanically operated firedoors, so that the effective date for locomotives in service shall be July 1, 1929, instead of April 1. All locomotives are to be equipped by July 1, 1931. The postponement is to apply only in those instances where necessary equipment is not available.

Railroads Use Many Trucks

Highways, airways, waterways and railroads have the common job of transportation and are not intrinsically competitive, in the opinion of A. J. Brosseau, vice president of the commercial car division of the National Automobile Chamber of Commerce, whose pamphlet "Co-ordination" is published by the export committee of that body.



Fairmont M-22, Paint Spray Car, Ready for Service.

Six points are cited by Mr. Brosseau as examples of the ways in which the railroads are using motor trucks to effect greater economies. He also brings out the fact that sixty steam railroads of the country are using about 1200 motor buses.

"Co-ordination" is the second of a series of pamphlets printed in four languages to be made available in all countries for transportation executives and students of economics. There has been demand for this series from approximately 6000 government officials, highway executives, bankers, motor dealers and other business men abroad.

Six major ways in which motor transport is proving serviceable to the railroads are outlined by Mr. Brosseau as follows:

In line haul, to replace abandoned branch rail lines or to extend rail service into sparsely settled districts.

As substitutes for local less than carload or "peddler" way freight trains.

In terminal work. In developing container car systems.

For assembling and distributing less than carload lot, or less than carload shipments from and to off-track freight stations located in central points of a city which are not served by rail lines.

To replace transfer cars used in terminal interchange of less-than-carload freight between different rail lines.

For store-door delivery.

Advertising Does Pay

There is no doubt in my mind that our advertising during the last three years has been an important factor in helping to bring about some of the improvement in service, in courtesy, in economy and in general all-around efficiency of our operations. We have looked upon our advertising appropriation as an investment and we are so well satisfied with its returns that I regard it as a continuing part of our public policy.—*W. W. Atterbury, President, Pennsylvania Railroad.*

Artistic Dining Cars

Saying that fashions in decorating change like fashions in clothes, the New York Central Railroad announces that six new dining cars finished in the latest pastel tones are to be placed in service with the Twentieth Century Limited. Three of the cars are decorated in gray and green and the other three in light brown and tan. To complete the effect, double sidebracket lights with parchment shades are provided in addition to the usual dome lights. In four of the cars the chairs are made of aluminum. Carpets harmonize with the finish.

Fully equipped, the new cars cost $52,000 each. As 21 dining cars are regularly used on the Twentieth Century, this equipment represents $1,092,000 investment. In 1890, the railroad paid $10,000 for a dining car. The Central was "sold" on dining cars when Commodore Vanderbilt saw the Western World, the second "hotel car" built by Pullman, when it reached New York in 1867.

Competition

"Yes," said the specialist, as he stood at the bedside of the ailing purchasing agent, "I can cure you."

"What will it cost?" the sick man inquired faintly.

"Five hundred dollars."

"You'll have to shade your price a little," replied the purchasing agent. "I had a better bid from the undertaker."

The OUTSTANDING throttle development

Built integrally with the superheater header and made up of a series of small valves opening consecutively, the American multiple throttle is the outstanding development in locomotive throttle design.

It provides better, easier control of locomotive operation and makes for simpler lower cost maintenance and increased safety.

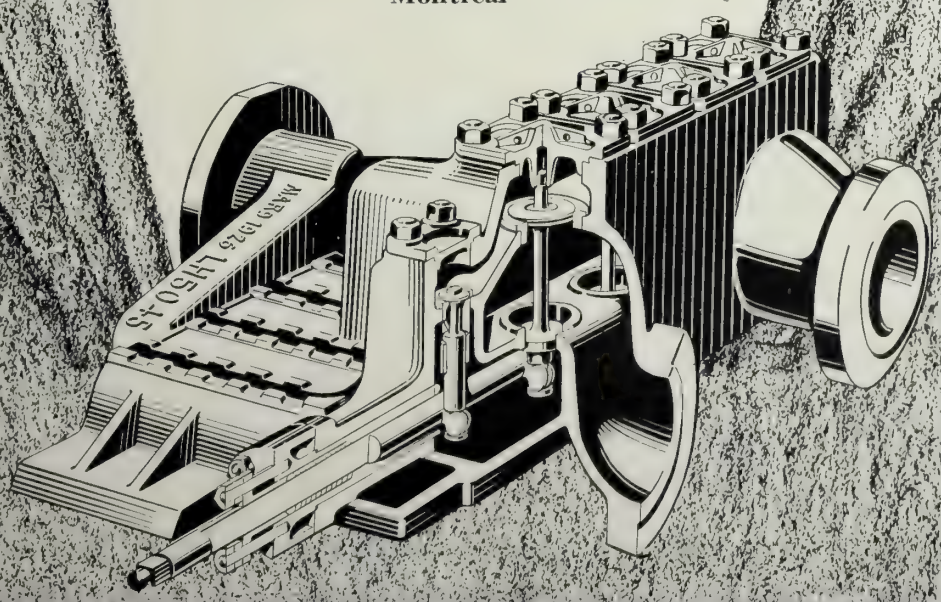
Its successful satisfactory performance is emphasized by this fact—of the locomotives using smokebox throttles ordered during the past year, more than 85 per cent are to be equipped with the American multiple throttle.

AMERICAN THROTTLE COMPANY, Inc.

17 East 42nd Street
New York, N. Y.

Peoples Gas Building
Chicago, Ill.

CANADIAN REPRESENTATIVES:
The Superheater Company, Ltd.
Montreal



A-210

UNION PACIFIC RAILROAD COMPANY

THIRTY-SECOND ANNUAL REPORT—YEAR ENDING DECEMBER 31, 1928.

TO THE STOCKHOLDERS OF UNION PACIFIC RAILROAD COMPANY:

The Board of Directors submits the following report of the operations and affairs of the Union Pacific Railroad Company for the calendar year ended December 31, 1928, *including* the Oregon Short Line Railroad Company, whose entire Capital Stock is owned by the Union Pacific Railroad Company, the Oregon-Washington Railroad & Navigation Company, whose entire Capital Stock (except fifteen qualifying shares held by Directors) is owned by the Oregon Short Line Railroad Company, and the Los Angeles & Salt Lake Railroad Company, whose entire Capital Stock is owned, one half each, by the Union Pacific Railroad Company and the Oregon Short Line Railroad Company. For convenience, the four companies are designated by the term "UNION PACIFIC SYSTEM."

INCOME

The operated mileage at close of year and income for the calendar year 1928, compared with 1927, *after excluding all offsetting accounts between the Union Pacific Railroad Co., Oregon Short Line Railroad Co., Oregon-Washington Railroad & Navigation Co., and Los Angeles & Salt Lake Railroad Co.*, were as follows:

Operated Mileage at Close of Year.	Calendar Year 1928.	Calender Year 1927.	INCREASE.	DECREASE.
Miles of road	9,857.53	9,676.81	180.72	
Miles of additional main track	1,547.16	1,526.31	20.85	
Miles of yard tracks and sidings	3,919.82	3,842.05	77.77	
Total Mileage Operated	15,324.51	15,045.17	279.34	
INCOME.				
Operating Revenues	$215,169,245.62	$203,891,622.46	$11,277,623.16	
Operating Expenses	146,256,488.06	140,334,442.20	5,922,045.86	
Revenues over Expenses	$68,912,757.56	$63,557,180.26	$5,355,577.30	
Taxes	15,978,221.79	15,985,844.32	.....	$7,622.53
Uncollectible Railway Revenues	9,647.37	17,073.98	.....	7,426.61
Railway Operating Income	$52,924,888.40	$47,554,261.96	$5,370,626.44	
Rents from use of joint tracks, yards, and terminal facilities	1,064,656.17	1,667,282.32	.....	$602,626.15
	$53,989,544.57	$49,221,544.28	$4,768,000.29	
Hire of equipment—debit balance, and rents for use of joint tracks, yards, and terminal facilities	10,170,549.54	9,738,154.02	432,395.52	
Net Income from Transportation Operations	$43,818,995.03	$39,483,390.26	$4,335,604.77	
Income from Investments and sources other than transportation operations	20,346,558.13	18,435,629.57	1,910,928.56	
Total Income	$64,165,553.16	$57,919,019.83	$6,246,533.33	
Deduct:				
Fixed and Other Charges	18,058,681.02	18,253,784.61	.....	$195,103.59
Net Income from All Sources	$46,106,872.14	$39,665,235.22	$6,441,636.92	
DISPOSITION OF NET INCOME.				
Dividends on Preferred Stock of Union Pacific Railroad Company	$3,981,724.00	$3,981,740.00	.....	$16.00
Surplus for Common Stock of Union Pacific Railroad Company	$42,125,148.14	$35,683,495.22	$6,441,652.92	
Per Cent earned on $222,291,600 par value	18.95	16.05	2.90	
Dividends on Common Stock	22,229,160.00	22,229,160.00		
Surplus, Transferred to Profit and Loss	$19,895,988.14	$13,454,335.22	$6,441,652.92	

Operating results for year 1928 compared with year 1927:

		Calendar Year 1928.	Calendar Year 1927.	INCREASE.	DECREASE.	PER CENT.
	Average miles of road operated	9,813.48	9,677.63	135.85	.....	1.4
	OPERATING REVENUES.					
1.	Freight revenue	$169,568,273.35	$157,745,245.71	$11,823,027.64	.....	7.5
2.	Passenger revenue	26,886,972.96	28,452,380.42	.....	$1,565,407.46	5.5
3.	Mail revenue	4,680,872.46	4,343,021.79	337,850.67	.....	7.8
4.	Express revenue	4,347,280.52	3,981,604.43	365,676.09	.....	9.2
5.	Other passenger-train revenue	3,877,439.45	4,010,507.56	.....	133,068.11	3.3
6.	Other train revenue	74,667.03	85,588.75	.....	10,921.72	12.8
7.	Switching revenue	1,302,709.49	1,320,080.18	.....	17,370.69	1.3
8.	Water line revenue	80,459.55	66,828.17	13,631.38	.....	20.4
9.	Other revenue	4,350,570.81	3,886,365.45	464,205.36	.....	11.9
10.	Total operating revenues	$215,169,245.62	$203,891,622.46	$11,277,623.16	.....	5.5
	OPERATING EXPENSES					
11.	Maintenance of way and structures	$28,243,556.89	$27,991,232.06	$252,324.83	.....	.9
12.	Maintenance of equipment	39,054,207.81	37,393,403.04	1,660,804.77	.....	4.4
13.	Total maintenance expenses	$67,297,764.70	$65,384,635.10	$1,913,129.60	.....	2.9
14.	Traffic expenses	4,638,306.39	4,579,355.41	58,950.98	.....	1.3
15.	Transportation expenses—rail line	61,713,749.85	58,373,993.60	3,339,756.25	.....	5.7
16.	Transportation expenses—water line	61,979.82	58,560.47	3,419.35	.....	5.8
17.	Miscellaneous operations expenses	4,679,814.51	4,400,306.53	279,507.98	.....	6.4
18.	General expenses	7,920,081.94	7,560,762.02	359,319.92	.....	4.8
19.	Transportation for investment—*Credit*	55,209.15	23,170.93	32,038.22	.....	138.3
20.	Total operating expenses	$146,256,488.06	$140,334,442.20	$5,922,045.86	.....	4.2
21.	Revenues over expenses	$68,912,757.56	$63,557,180.26	$5,355,577.30	.....	8.4
	TAXES.					
22.	State and county	$11,433,374.14	$11,852,812.46	.....	$419,438.32	3.5
23.	Federal income and other federal	4,544,847.65	4,133,031.86	$411,815.79	.....	10.0
24.	Total taxes	$15,978,221.79	$15,985,844.32	.....	$7,622.53	–
25.	Uncollectible railway revenues	$9,647.37	$17,073.98	.....	$7,426.61	43.5
26.	Railway operating income	$52,924,888.40	$47,554,261.96	$5,370,626.44	.....	11.3
27.	Equipment rents (debit)	7,965,912.58	6,954,515.26	1,011,397.32	.....	14.5
28.	Joint facility rents (debit)	1,139,980.79	1,116,356.44	23,624.35	.....	2.1
29.	Net railway operating income	$43,818,995.03	$39,483,390.26	$4,335,604.77	.....	11.0
	Per cent Operating expenses of operating revenues	67.97	68.83	.....	.86	1.2
	FREIGHT TRAFFIC. (*Commercial freight only*)					
	Tons of revenue freight carried	35,717,820	34,785,587	932,233	.....	2.7
	Ton-miles, revenue freight	14,301,827,671	13,157,043,050	1,144,784,621	.....	8.7
	Average distance hauled per ton (*miles*)	400.41	378.23	22.18	.....	5.9
	Average revenue per ton-mile (*cents*)	1.168	1.181	.....	.013	1.1
	Average revenue per freight-train mile	$7.46	$7.57	.....	$.11	1.5

PASSENGER TRAFFIC.
(Excluding Motor Car and Motor Coach)

Revenue passengers carried	3,091,964	3,494,825	.....	402,861	11.5
Revenue passengers carried one mile	889,651,207	931,033,103	.....	41,381,896	4.4
Average distance hauled per passenger (*miles*)	287.73	266.40	21.33	.....	8.0
Average passengers per passenger-train mile	47.23	48.93	.....	1.70	3.5
Average revenue per passenger-mile (*cents*)	2.942	2.991	.....	.049	1.6
Average revenue per passenger-train mile, passengers only	$1.39	$1.46	.....	$.07	4.8
Average total revenue per passenger-train mile	$2.06	$2.10	.....	$.04	1.9

The increase of $11,823,027.64 or 7.5% in "Freight Revenue" was due to an increase of 8.7 per cent in net ton miles of revenue freight carried, partially offset by a decrease of 1.1 per cent in average revenue per ton mile due in part to a 7½ per cent reduction in rates on all deciduous fruits, except apples, from California and Utah, effective February 10, 1928. There were substantial increases in the movement of grain, fresh vegetables, canned vegetables and fruits, and fresh deciduous fruits, due chiefly to : (1) large hold-overs from 1927 crops of wheat in the Northwestern States, of corn in Nebraska and Kansas and of potatoes in Idaho, and (2) increased acreage and production of vegetables and better crops of deciduous fruits in States west of the Rocky Mountains. The movement of citrus fruits decreased because of smaller orange crop. Livestock moved in greater volume principally because of favorable market prices. Business conditions generally were good throughout System territory and consequently there were increased shipments of manufactures and miscellaneous commodities, particularly automobiles and parts, and of lumber from Pacific Northwest mills, while an improved metal market resulted in a heavier movement of lead, zinc and copper from smelters in Utah, Idaho and Montana. Larger production in Kansas, Colorado and Wyoming oil fields, increased output from refineries in System territory and a greater demand for gasoline in all sections caused an increase in the transportation of petroleum and refined oils, although residual petroleum oils moved in less volume due to a lessened demand for their use in road improvements. There were decreases in the movement of stone and coal, attributable respectively to the completion during the year of breakwater at Long Beach, California, and to milder weather conditions during the winter months and termination of the miners' strike in Colorado, which resulted in a reduction in long-haul shipments from Wyoming and Utah mines and a resumption of short-haul shipments from Colorado mines.

The decrease of $1,565,407.46 or 5.5% in "Passenger Revenue" was due to decreases of 4.4 per cent in revenue passengers carried one mile and of 1.6 per cent in average revenue per passenger mile. The decrease in revenue passengers carried one mile was occasioned by the continued diversion of short-haul business to motor vehicles.

The increase of $337,850.67 or 7.8% in "Mail Revenue" was due chiefly to an increase of approximately 15 per cent in mail pay rates effective August 1, 1928.

The increase of $365,676.09 or 9.2% in "Express Revenue" was due principally to a substantial increase in the movement by express of carload shipments of early fruits from California and the Pacific Northwest because of improved crops.

The increase of $464,205.36 or 11.9% in "Other Revenue" was due principally to increases in hotel and restaurant revenues because of increased travel through Southern Utah Parks, and in joint facility revenues on account of heavier movement of logs on the Camas Prairie Railroad (operated as a joint facility with the Northern Pacific), resulting from the opening for operation on January 1, 1928, of an extension from Orofino to Headquarters, Idaho, and because of increase in our proportion of earnings of certain passenger trains operated in pool service between Portland, Oregon, and Seattle, Washington (this increase was offset by decrease in earnings of other passenger trains in the pool service which are included in other accounts).

The increase of $252,324.83 or .9% in "Maintenance of Way and Structures Expenses" was due to ordinary fluctuations in repairs and renewals.

The principal track materials used during the year in making renewals were as follows:

New steel rails	232.60 track miles
Second-hand steel rails	72.21 track miles
Total	304.81 track miles

excluding yard tracks and sidings, equivalent to 2.9 per cent of the track miles in main track at the beginning of the year. Ties 2,645,731 (98.3 per cent treated), equivalent to 6.8 per cent of all ties in track at the beginning of the year. Tie plates 1,515,092 and continuous rail joints 102,917.

The increase of $1,660,804.77 or 4.4% in "Maintenance of Equipment Expenses" was due principally to heavy repairs to locomotives and freight-train cars because of increased use resulting from improvement in traffic and to retirement of obsolete locomotives and passenger cars. Freight-locomotive mileage increased 8.3 per cent and freight-train car mileage increased 12 per cent.

The increase of $3,339,756.25 or 5.7% in "Transportation Expenses—Rail Line" was due principally to increases in engine and train crews and station forces, and in quantities of fuel consumed by locomotives, resulting from an increase of 2.7 per cent in tons of revenue freight hauled and of 11.1 per cent in freight gross ton miles, and to an increase of approximately $1,450,000 in wage schedules of enginemen, trainmen and station employes.

The increase of $279,507.98 or 6.4% in "Miscellaneous Operations Expenses" was due principally to increased operations of hotels in Southern Utah Parks area.

The increase of $359,319.92 or 4.8% in "General Expenses" was due principally to increases in wages, pension payments and premiums on employes' group insurance.

An analysis by classes of the net decrease of $7,622.53 in "Taxes" is shown in the table. The decrease in State and county taxes resulted from decreases in several States in both assessments and tax levies. The increase in Federal income and other Federal taxes was due to increase in taxable income, partially offset by a decrease in the income tax rate from 13½ to 12 per cent under the "Revenue Act of 1928."

The increase of $1,011,397.32 or 14.5% in "Equipment Rents (Debit)" was due chiefly to increase of 15.5 per cent in mileage payments on refrigerator cars, there having been a substantial increase in number of carloads of perishable commodities handled.

[ADVERTISEMENT]

The News of the Month

What's Been Going on in Transportation, Railroads, Automotive, Supply, Aviation

AS THE mechanical division of the American Railway Association has not heretofore held a convention west of Chicago, special arrangements have been made to make particularly enjoyable the forthcoming meeting at Los Angeles, June 25 to 28. Special trains have been scheduled on most of the transcontinental lines. That running over the Santa Fe will leave Chicago at 10:30 p.m., June 20, and arrive at Los Angeles at 1:30 p.m., June 24. A three-hour lay-over has been set down for Albuquerque where the travelers will visit the Santa Fe's big shops. Sunday, June 23, will be spent at the Grand Canyon.

P&A Photo.

What the Flood Did to the H. & N. E. Ry., At Harriman, Tenn., Last Month. This Line Is Part of the Southern Railway.

The Rock Island will have a special train out of Chicago at 11:30 p.m., June 19. This train will stop over one day at Colorado Springs, leaving there at 6:00 a.m., June 22, and proceed to Salt Lake City over the Rio Grande. The party will stay there until 3:30 p.m. the day of arrival, Sunday, June 23, going direct to Los Angeles, where it will arrive at 2:35 p.m., June 24, over the Union Pacific.

The Chicago & North Western and Union Pacific System will have two special trains, the first leaving Chicago at 8:30 p.m., June 21, reaching Los Angeles at 2:30 p.m. The second train will leave Chicago at 8:30 p.m., June 18. This train will have a three-day lay-over at Zion National Park and Bryce Canyon National Park, with time allowed also for a trip to the salt lake at the city of that name. These visitors will arrive at Los Angeles at 2:30 p.m., Monday, June 24.

The Missouri Pacific, Denver & Rio Grande Western, and the Union Pacific have arranged a train to leave St. Louis at 2:02 p.m., June 21 arriving at Los Angeles June 24, after a lay-over of several hours at Salt Lake City.

A committee at Los Angeles made up of western railway men and representatives of supply manufacturers, headed by George Bierman, general passenger agent of the Union Pacific, has arranged a varied program of entertainment for the visitors, their families and friends, tickets for which will be distributed when they register at the convention headquarters in the Hotel Alexandria, at Fifth and Spring streets. Members of the Railway Supply Manufacturers' Association have been invited to attend all the sessions of the A. R. A., Division V, and to participate in the entertainment provided.

The first day's session will begin at 9:30 a.m., in the ballroom of the Alexandria, and will adjourn at 5:00 p.m. The technical programs have been distributed to all members and delegates. Adjournment of the convention is scheduled for 12:30 p.m., Friday, June 28.

The tenth yearly convention of Division VI, A. R. A. Purchases and Stores, will begin at San Francisco, Monday, June 24, and adjourn June 26. The transportation committee of that division has arranged for special trains over the Chicago & North Western, Union Pacific and the Southern Pacific. The first of these trains leaves Chicago at 6:10 p.m., June 19, for Omaha where it will leave over the Union Pacific at 8 o'clock the next morning for Salt Lake City, arriving at 10:00 a.m., June 21. There will be a sight-seeing trip immediately upon arrival, the delegates and their families returning to the city in time for an organ recital at the Mormon Tabernacle at noon. The train will leave at 1:00 p.m., the same day for Sacramento, arriving at 11:00 a.m., the next morning, June 22. There the party will visit the Southern Pacific's big shops and reclamation plant, leave at 12:30 p.m. for San Francisco and arrive at 3:50 p.m.

In addition to the special trains from Chicago, through sleeping cars will also be operated from St. Louis, Minneapolis and St. Paul to be attached to the specials at Omaha. The train from St. Louis will leave that city over the Wabash at 7:30 p.m., June 19; that from Minneapolis will start over the Chicago & North Western at 7:50 p.m., June 19. A dozen available routes for the westward trip and the return journey have been devised for the convenience of those who may not wish to remain with the special trains throughout the period.

Headquarters for Division VI at San Francisco will be at the Palace Hotel. The convention will open at 9:00 a.m., Monday, June 24.

"The Empire Builder" for Next Month

New equipment representing an outlay of nearly $5,000,000 will be used in a new fast passenger service between Chicago and the Pacific Northwest to be established June 10 by the Great Northern Railway, according to an announcement by W. P. Kenney, vice president and director of traffic. The new train, to be operated five hours faster than present schedules, will be named "The Empire Builder," in honor of James J. Hill, whose pioneering achievements in the Northwest gave him that title. The run from Chicago to Seattle will be made in 63 hours instead of 68.

Except for the building of the eight-mile Cascade tunnel, Mr. Kenney said, the Great Northern has never done a thing so worthy of its founder, Mr. Hill.

"With the finest equipment that ever has been turned out of the Pullman Co.'s plant," Mr. Kenney said, "combined with the drastic reduction in running time, we believe the 'Empire

SELF-PROPELLED COMPRESSOR and "STRAIGHT BACK" TIE TAMPERS

On The Job

MANY railroads are using these units because of their convenience, speed and reliability. The standard CP Compressor is mounted on a truck frame carrying flanged wheels with Timken roller bearings, transverse shifting wheels and winch, air-operated lifting jacks, lifting bale and a roomy tool box. The gasoline engine that operates the compressor also propels the car at a speed of 12 to 18 miles per hour, depending upon its size. The compressor is furnished in sizes of 110, 160, 220, 265 and 310 cu. ft. per minute displacement. The CP Tie Tampers have several interesting features that are fully described in folder No. 1646. Details of the Self-Propelled Compressors are given in Bulletin No 789.

Chicago Pneumatic Tool Company

Railroad Department

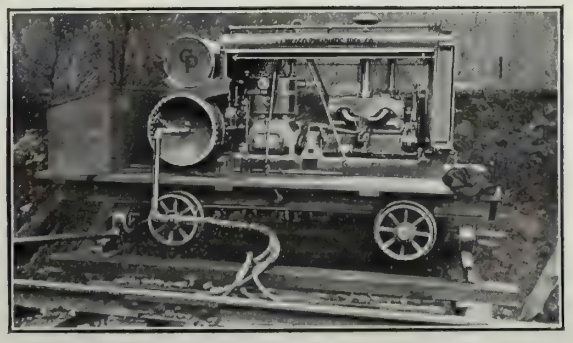
6 East 44th Street
New York

1004 Mutual Bldg.
Richmond, Va.

175 First Street
San Francisco

310 S. Michigan Ave.
Chicago

J-293



Builder' to be the most pretentious development in railway passenger transportation that has ever taken place."

The new train will be a companion to the Oriental limited, the Great Northern's present crack train. Neither the Oriental Limited nor the Empire Builder will be extra fare trains.

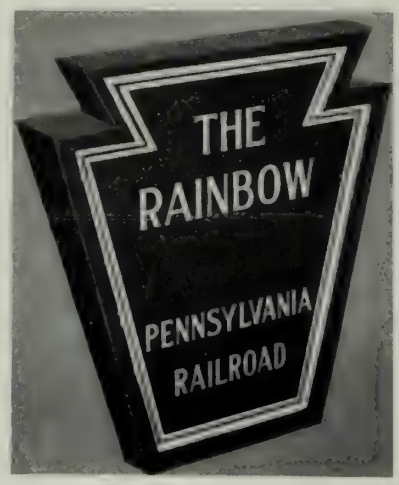
In the fleet comprising the Empire Builder service will be eight complete trains, with all new equipment, including six new locomotives. Each of the eight sections will represent a cost of more than half a million dollars and will weigh a thousand tons. The Pullmans will bear the names of distinguished explorers, pioneers, soldiers and Mr. Hill's associates who helped bring about the development of the Northwest country.

Western Net 4.68

Class I railroads in the western district for the first two months in 1929 had a net railway operating income of $53,265,023, which was at the annual rate of return of 4.68 per cent on their property investment. For the first two months in 1928, the railroads in that district had a net railway operating income of $47,803,745, which was at the annual rate of return of 4.38 per cent on their property investment. Gross operating revenues of the Class I railroads in the western district for the first two months this year amounted to $351,275,751, an increase of 3.8 per cent compared with the same period last year, while operating expenses totaled $264,228,391, an increase of 1.9 per cent compared with the first two months the year before. For February, the net railway operating income of the Class I railroads in the western district amounted to $27,822,237. The net railway operating income of the same roads in February, 1928, totaled $27,695,929.

Covered Bridges to Go

Among the eighteen Delaware River bridges that connect New Jersey with Pennsylvania there are just four of the old covered type built 70 or 80 years ago. They are at Columbia, Milford, Frenchtown and Raven Rock. While the Columbia bridge is now a free bridge, having been acquired jointly by New Jersey and Pennsylvania in 1927, the three others are still toll bridges but negotiations for their purchase have practically been completed. The Columbia-Portland bridge, which is a wholly covered structure, were erected a little more than 60 years ago. The bridge from Raven Rock to Lumberville is only partly covered, one span near the Pennsylvania side being constructed of steel. This bridge was opened to traffic about 1853. The bridge from Frenchtown to Uhlertown is also partly covered. It was opened in 1844. The bridge between Milford and Upper Black opened in 1842, is completely covered. The three last named bridges are the only partly or wholly covered bridges across the Delaware which have not been acquired by the joint commission for the elimination of toll bridges over the Delaware. The commission has agreements of purchase with the owners, however, which probably will be carried out during the present year.



Chicago River Water for This Rainbow

The Rainbow, newest of the Pennsylvania Railroad's fleet of fast passenger trains to New York from Chicago, was dedicated at Chicago April 28 to the Rainbow (42d) Division of the A. E. F. just prior to its departure from the Union Station on its first trip. Military ceremonies preceded the departure of the train at 3 o'clock standard time. Following a band concert by the Second Infantry Band from Ft. Sheridan, Ill., the dedication program was held on the Rainbow's flag-draped observation platform. J. E. Weller, assistant vice president, traffic, of the Pennsylvania Railroad, presided. In an introductory speech, he declared that the Pennsylvania Railroad, in casting about for a name for its new train, had selected "The Rainbow" in honor of the famous division. The name was first suggested by a young brakeman on the Long Island Railroad, New York, John E. Danielson. Mrs. Danielson, his wife, christened the new limited by breaking a bottle of Chicago river water over the keystone sign on the rear platform of the observation car. The Rainbow runs on a schedule of 20 hours and 50 minutes to New York, second only to the Broadway Limited

Do You Remember Lancaster?

The Pennsylvania Railroad opened a new station at Lancaster, Pa., Sunday, April 28. The company's formal announcement describes gay ceremonies attending the event, band concert, speeches—of course—and a luncheon for city and railroad officials and their friends. For persons who read and remember history the item should prove unusually interesting. If we are not much mistaken it was at Lancaster, in eighteen hundred and something, that the authorities refused to permit the use of the public schoolhouse for a lecture about railroads, unholy things to be discouraged, in the opinions of the Lancaster school board members. The town must have changed much since those days if the P.R.R. had to put up a new station.

2-Way Phones for Trains

A successful test of a two-way telephone conversation carried on between an express train on the Canadian National Railways, speeding toward Allendale, and the office of the telegraph company at Toronto, was held May 5.

The system of telephone communication was worked out by the railroad's telegraph engineers and was the first time a sustained two-way conversation ever has been held from a moving train.

Chicago for Compulsory Electrification

Representatives of all railroads entering Chicago were invited to attend a meeting of a legislative committee in the county building May 6 to consider a bill introduced by Representative Harris B. Gains of Chicago to compel all railroads to electrify their service within the corporate limits of Chicago by 1933.

A survey undertaken by the Association of Commerce before the war indicated it would cost $275,000,000 to electrify all the city's terminals—a cost then considered prohibitive. Engineers estimate present price levels would bring the cost to at least $850,000,000. Railroad presidents and engineers told the aldermen a year ago that electrification was out of the question because of the prohibitive costs.

An Old Friend Bobs Up Again

The Interstate Commerce Commission has authorized the Denver Salt Lake Western Railroad to construct 41 miles of line in Eagle County, Colo., from Orestod, on the Denver & Salt Lake to Dotsero, on the Denver & Rio Grande Western.

Authorization, however, is granted upon the condition that the Rio Grande Western be permitted to operate over the proposed new line and over the Denver & Salt Lake between Orestod and Utah Junction, Colo., under fair and reasonable terms.

7 cents per passenger per mile!

Main Cabin of the Patrician—Private Compartment forward

TO ESTABLISHED transport lines, the PATRICIAN affords hitherto unexisting opportunities for increased patronage, with greater economy in operation. The incomparable speed of this transcontinental air liner, its unequalled capacity for passengers and freight, make possible a new low level in operating costs . . . conservatively, 25% to 50% lower than with other transports. This calculation, based on full load, takes into consideration among other charges, insurance, interest, depreciation and hangar rental.

The PATRICIAN has flown many thousands of miles in every section of the United States from the Atlantic to the Pacific, with varying loads and under all conditions encountered in regular transport service. Its magnificent performance is a matter of record, carefully compiled during actual operation, precise, authentic. Vastly improved schedules—entirely new standards of convenient, luxurious travel by air—*increased safety because of its great reserve of power*—are now assured by this newest and greatest air transport.

An analysis of the savings to be effected with the PATRICIAN in individual cases will be prepared upon request.

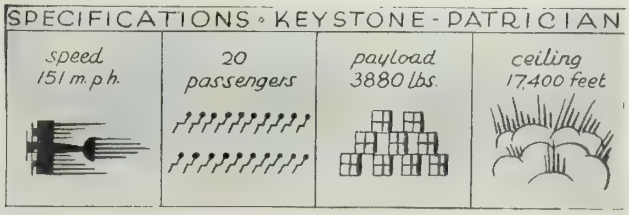
KEYSTONE AIRCRAFT CORPORATION

Sales Dept.—31st Street and East River, New York

Plants—Bristol, Penna., and New York City

California Representative: W. E. Thomas, 3417 Angeles Mesa Drive, Los Angeles

The Patrician—Fastest Transport in the World



KEYSTONE

"THE KEYSTONE OF SAFE FLYING"

Formal authorization was withheld, however, and the record held open pending the filing and approval of the proposed trackage agreements. The conditional authorization means that the Denver & Rio Grande Western will be permitted to make use of the Moffat Tunnel on the Denver & Salt Lake Western line.

Can't Have Oakland Belt Line

Denial of an application of the Western Pacific Railroad for authority to acquire the line of the Union Belt Railway of Oakland and for construction of two proposed lines in Alameda county, Cal., was announced April 25 by the Interstate Commerce Commission.

The application was denied without prejudice to renewal in part. The record will be held open for taking further testimony upon the application of the Southern Pacific railway companies for authority to acquire the Union Belt.

Two Lines Drop Extra Charges

Los Angeles to Chicago in 58 hours on the Santa Fe's Chief, beginning June 9. No more extra fare on the Union Pacific's Los Angeles Limited and the Southern Pacfiic's Golden State Limited. Beginning on the date mentioned the Chief will leave Los Angeles at 9:45 p.m., and reach Chicago at 9:45 a.m., 58 hours afterward; the Los Angeles Limited will leave at 6:05 p.m., and arrive in Chicago at 9:20 a.m. The Golden State Limited will maintain its present schedule.

A new Union Pacific train to be known as the Pacific Coast Limited will be placed in service between Los Angeles and Kansas City and St. Louis, cutting eight hours and thirty minutes in time, it was announced. A proportionate time saving will be made to Denver. This train will leave Los Angeles at 7:30 p.m.

The same railroad will also change the departure time of the Continental Limited from early evening to 9:40 a.m., due to reach Chicago from Los Angeles at 7:30 a.m. the third morning.

Santa Fe officials announce that the California Limited, beginning June 9, will leave Los Angeles at 6 p.m., and arrive in Chicago at 9:15 a.m., using the old schedule of the Chief. Westbound the Limited will leave Chicago at 8:15 p.m., and arrive in Los Angeles at 9:15 p.m., 63 hours later.

The time of the Overland Limited on the Union Pacific will be cut to 58 hours between San Francisco and Chicago, June 9, keeping the extra fare rate. The new schedule is for the Overland to leave San Francisco at 9:40 p.m., and arrive in Chicago at 9:40 a.m. the third day. Westbound it will leave Chicago at 12:30 p.m. and arrive in San Francisco at 8:30 p.m.

A new train to be called the San Francisco Limited will be operated without extra fare on the old time schedule of the Overland.

Fewer Surplus Cars

Class I railroads had 258,253 surplus freight cars in good repair and immediately available for service, April 15, the car service division of the American Railway Association announced. This was a decrease of 13,100 cars compared with April 8, at which time there were 271,353 cars.

Surplus coal cars totaled 124,289 on April 15, a decrease of 10,437 cars within about a week, while surplus box cars totaled 86,664, a decrease of 2,443 for the same period.

Reports also showed 26,888 surplus stock cars, a decrease of 676 cars under the number reported on April 8, while surplus refrigerator cars totaled 11,996, an increase of 616 for the same period.

Million Car Week Again

Loading of revenue freight for the week ended on April 20 totaled 1,004,156 cars, the car service division of the American Railway Association reported. This was the first time this year that loading of revenue freight has exceeded the million car mark in any one week, being an increase of 32,426 cars over the preceding week this year. All commodities showed increases over the week before except forest products and merchandise less than carload lot freight.

Compared with the same week last year, loading of revenue freight for the week was an increase of 58,867 cars, and an increase of 53,611 cars above the same week in 1927.

All districts reported increases in the total loading of all commodities compared with the same week in 1928 while all except the Pocahontas district reported increases compared with the same week in 1927.

The Softening of Water

Everyone is interested in water softeners, especially railroad engineers, and they are ready to talk the subject at any moment. These men, particularly if they are operating in a hard water region, know much about the lime-soda process, and they know, too, that until the development of the Paige-Jones Electro-Magnetic Proportioner accurate feeding of the chemicals left much to be desired.

Now it is possible by means of this accurate device to control automatically to a very high degree the volume of chemicals fed to the water, thus bringing a new usefulness to the lime-soda softener.

The Paige-Jones lime-soda water softener operates on the well known precipitation principle, wherein the proper chemicals are added to the water to reduce its hardness by precipitating the hardening salts. In this softener the volume principle of chemical control, whereby the amount of water supplied to the softener controls the volume of chemical introduced, is accurate to a degree far surpassing all former conceptions of accuracy in proportioning the chemical. This is made possible by the Paige-Jones Electro Magnetic Proportioner—the basic unit of the softener and equally adaptable to cold, semi-hot and hot process machines.

Superintendents to Mexico June 3-7

Members of the American Association of Railroad Superintendents are going to take a long chance that no revolutions will revolve for a few days in June, and have therefore accepted the invitation of President Emilio Portes Gil to meet in Mexico City June 3 to 7. The products of the Equipment Exhibit Association will be displayed in the National Palace, the White House of Mexico. The officers of the superintendents' association have been assured that the convention may be held in the national capital of Mexico in perfect safety.

Stinson Planes To China

Shipment of three carloads of Stinson cabin planes was made April 19, by the Stinson Aircraft Corpn. of Wayne to the Chinese Nationalist government. Four Stinson-Detroiter planes crated for the long journey were shipped to Seattle where they will be put aboard the boat for Shanghai. The planes are to be used on the first Chinese government air mail line, from Shanghai to Nanking, 165 miles, and then to Hankow, 300 miles. The passenger fare from Shanghai to Hankow will be about $35 American money. Service starts by the middle of June. The Stinson-Detroiters to be used on the route are standard six-passenger planes, powered with the new 300 h.p. Wright engines. The planes are equipped with baggage and toilet compartment and are similar in all details to the famous Stinson plane "Pride of Detroit."

Heavier Rail for the Southern

Contracts for 43,500 tons of rail, enough to lay 263 miles of track, for delivery during April, May and June, have been let by the Southern Railway System. The purchase includes 11,700 tons of 130-pound section, 28,800 tons of 100-pound, and 3,000 tons of 85-pound.

"IF"

There are few propositions to which, in their early existence, the conditional "if" is not applied.

We commonly say that if a device will do this or that—if it will meet this condition or that requirement, it is no doubt a good device.

The "if" in such instances expresses but a legitimate and reasonable conservatism.

But really, is there more than small cause for the application of the conditional "if" to an equipment which from the very outset has proved not only its mechanical feasibility, but a thing far more important than that—namely, that to couple and uncouple train pipe hose Automatically *is* to effect one of the most worth while improvements in train operation in recent years?

It would be useless for us to make this statement if it were not true — if it were not susceptible of demonstration to your satisfaction.

ROBINSON AUTOMATIC CONNECTOR

"Building Automatic Connectors is our exclusive business"

415 Lexington Avenue
New York

Complete information on request

Railway Construction

Tracks and Yards

CALIFORNIA.—The Southern Pacific has let a contract for the 14-mile line from Knight's Landing to Boyer's Landing to W. A. Bechtel, San Francisco.

COLORADO.—The Denver & Salt Lake Western has permission to build a 41.3-mi. line from Orestod to Dotsero where it connects with the Rio Grande. According to the permit, the Denver & Salt Lake Western must grant track rights to the Rio Grande over the Orestod-Utah Junction portion of the line.

MISSOURI.—The Wabash plans to depress its tracks through Forest Park in St. Louis at a cost of $48,000, of which the city will pay one third.

—The St. Louis-Southwestern has permission to build a 20 mile line from a connection with the Gideon & North Island at Gideon to a connection with the Deering & Southwestern at Deering. It also has permission to build an 11-mile line from a connection with the Deering & Southwestern at Hornersville to Leachville, Ark.

NEW MEXICO.—The San Luis Valley Southern has permission to extend its line from its southern terminus on the Colorado-New Mexico boundary southward 18 miles to Questa. The estimated cost is $378,572.

OREGON.—The Long-Bell Lumber Co. has let a contract to the Pacific Construction Co. for a logging railway from Ryderwood to a point 20 miles northwest.

SOUTH DAKOTA.—Peterson, Shirley & Gunther, Omaha, Neb. has a contract from the Chicago & North Western for building, grading, bridging and track laying for an extension from Winner to Wood. The cost is estimated at $1,250,000.

—Winston Brothers Const. Co., Minneapolis, has a contract from the Mound City & Eastern for rail laying and building of bridges and culverts on the 70-mile Mound City-Leola line.

TEXAS.—Frank Kell, president of the Wichita Falls & Southern, plans to build a 75-mile railroad from Wichita Falls north and east to Waurika, Okla., and Ringling.

—The Rock Island has asked permission to build a 60-mile line from Dalhart to Pringle to cost about $1,700,000. Application also has been made for a 108-mile line from Shamrock through Wellington to Quanah to connect with the Frisco there. The company has asked permission to acquire joint trackage rights on 37 miles of the St. Louis, San Francisco & Texas and 75 miles of the Gulf, Texas & Western, which, with the new line, will form a continuous line from Shamrock to Ft. Worth, the line from Jacksboro to Ft. Worth being built.

Buildings and Structures

CALIFORNIA. — Alturas. The Nevada-California-Oregon, a subsidiary of the Southern Pacific, will spend $325,000 to build shops and terminal facilities here, it is reported.

—Los Angeles. The Los Angeles Terminal Exchange, Inc., incorporated in Delaware in 1927, has asked permission to build a union station and an independent terminal system with about 20 tracks of three miles each in a subway to be connected with the tracks of all roads entering the city and operated with electric locomotives. The company will finance the project, it is stated, by issuing 200,000 shares of Class A 7 per cent stock, 250,000 shares of Class B 3½ per cent stock, and $50,000,000 of 30-year 5 per cent bonds. A. P. Gillies, president, signed the application.

—Los Angeles. A subsidiary of the Santa Fe, the Western Improvement Corpn., has acquired the terminal properties of the Los Angeles Corpn., thus providing the Santa Fe with an entrance into the Los Angeles and San Pedro ports. These terminal facilities consist of the Los Angeles Junction Railroad, the Los Angeles Union Stock Yards Co., the Westland Warehouses, Inc., and the Central Manufacturing District, Inc., the latter having an appraised value, in 1927, of $8,000,000.

FLORIDA. — Jacksonville. The Atlantic Coast Line has let a contract to the York Construction Co., Raleigh, N. C. for a brick warehouse here to be two stories with a floor space of 50 by 200 feet.

GEORGIA.—Atlanta. Plans for a station, a 17-story office building and a storage warehouse here have been submitted by the Nashville, Chattanooga & St. Louis to the Georgia public service comm. The estimated cost is $3,000,000.

INDIANA.—Indianapolis. The John F. Casey Co., Pittsburgh, has a contract from the Pennsylvania for a 20-stall addition to the enginehouse, a machine shop, an office building, and an addition to the power plant. T. J. Foley Co., Pittsburgh, has a contract for 23,000 ft. additional trackage to the Hawthorne yard here.

KENTUCKY. — Covington. Boxley Brothers Co., Orange, Va., has a contract from the Chesapeake & Ohio to convert the railroad bridge between Covington and Cincinnati, Ohio, into a highway bridge.

—Russell. The Chesapeake & Ohio has let a contract to Haley, Chisholm & Morris, Charlottesville, Va., for grading and masonry in connection with improvements here, to cost about $1,433,000.

MISSOURI.—Poplar Bluff. Gauger-Korsmo Construction Co., Memphis, Tenn. has a contract from the Missouri Pacific for a $153,000 engine shop and machine shop here.

NEBRASKA. — Omaha. The Union Pacific and the Burlington have agreed to combine their passenger terminal facilities here to form one union station at a cost of about $4,200,000. The Union Pacific will build a station on the site of the present union station to cost $3,500,000. This will accommodate Union Pacific, Chicago & North Western, Milwaukee, Rock Island, Illinois Central, Missouri Pacific and Wabash trains. The Burlington will remodel its present station at a cost of $700,000 to accommodate its and the Chicago Great Western trains. The tracks will be increased from 12 to 14 and will be changed from lower to upper level.

NEW JERSEY.—Mays Landing Court House. Daniel S. Bader Construction Co., Atlantic City, N. J. has a contract from the Pennsylvania for an overhead bridge to eliminate a grade crossing here.

OHIO.—Gnadenhutten. The Pennsylvania will renew its bridge over the Tuscarawas River here at a cost of about $130,000. McClintic-Marshall Co., Pittsburgh, has the contract.

OKLAHOMA.—El Reno. The United Engineers & Constructors, Chicago, has a contract from the Rock Island for a 79 by 403-ft., shed here to cost $164,279.

—Oklahoma City. The Rock Island, the Oklahoma Ry., and this city are to build a $350,000 viaduct and bridge, 800 ft. long, to carry Exchange ave. over the tracks of the two railroads and the North Canadian River.

PENNSYLVANIA.—Coxton. The Lehigh Valley has let a contract to the Roberts & Schaefer Co. for a 1700-ton capacity automatic electric locomotive coaling and sanding plant here.

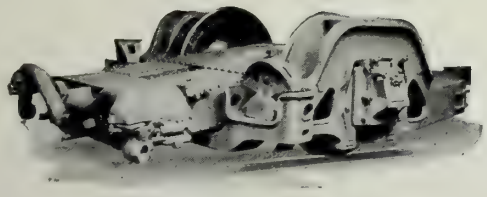
—Meadville. The Roberts & Schaefer Co. has a contract from the Erie for a

An Emergency Reserve For Alaskan Locomotives

ON 2-8-2 type locomotives built for the Alaskan Railroad, The Locomotive Booster has been included as an integral part of the design.

Railroading in Alaska brings up unexpected problems in operation that makes The Locomotive Booster particularly valuable.

This power reserve is always ready for duty at an instant's notice. Ready to speed get-a-way; to help on grades or to overcome emergencies where 8,700 lbs. more tractive effort will win through.



On every locomotive, the Booster deserves a place because of its use of idle weight and spare steam to develop power that would otherwise require an increased number of drivers.

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RAILWAY SUPPLY COMPANY, INC.

The Locomotive Booster Capitalizes Idle Weight and Spare Steam

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO MONTREAL

1000-ton capacity, four-track reinforced concrete automatic electric coaling station with sand handling and "N. & W." type cinder handling plants here.

—**Philadelphia.** James Stewart & Co., Inc., has a contract from the Pennsylvania for a new office building on Pennsylvania boulevard between 16th and 17th streets. The contract provides for completion by March 1, 1930. The building will cover an entire block, 108 feet wide and 394 feet long, and will be 22 stories high, a total height of 268 feet. Below the street level will be a part of the suburban station concourse. The structure will be fireproof; steel windows, metal trim and cement floors. The exterior will have a base of granite, with limestone above. Cast aluminum or dark terra cotta will be used in some of the spandrels. The main entrances, store fronts and all metal work in the first floor will be of bronze. The contract for the steel work has been awarded to the Bethlehem Steel Co.

Locomotive Orders

According to reports filed with the A. R. A., locomotives in need of repair on the Class I railroads on April 15 totaled 8,649 or 15 per cent of the number on line, 8.3 per cent in need of classified repairs and 6.7 per cent in need of running repairs. This was an increase of 607 compared with the number in need of repair on April 1, at which time there were 8,042 or 13.9 per cent. Serviceable locomotives in storage April 15 totaled 5,887 compared with 5,866 on April 1.

The Baldwin Company received the following orders: Canadian National, 15 locomotives; Central of New Jersey, five switchers; Denver & Rio Grande Western, four 4-8-2 type; Elgin, Joliet & Eastern, six 2-8-2 type; Patapsco & Back River, two locomotives. The American Locomotive Company received orders from the Rock Island for 25 4-8-4 type and five 4-8-2 type; Sorocabana Railway, San Paulo, Brazil, five 4-10-2 type; A. M. Byers Co., one switcher; Calumet & Hecla Consolidated Copper Co., one 2-6-0 type; Monessen Southwestern, one switcher; New Cornelia Copper Co., three switchers; James Stone & Co., one switcher. Lima received an order from the Nickel Plate for four Hudson type. The Cleveland Union Terminal Co. ordered two electric locomotives from General Electric and American. The Southern Pacific will build ten Mountain type locomotives and 20 tenders in its own shops.

It is reported that the Wabash will soon authorize inquiries for 50 locomotives; the Delaware & Hudson will buy one consolidated type and the Texas Corpn., one locomotive.

Passenger Car Orders

Orders for passenger cars placed since the April issue of Transportation include the following: Baltimore & Ohio, 10 baggage and mail cars with American Car & Fdy. Co., 100 express cars with Standard Steel Car Co., 15 baggage cars with Bethlehem Steel Co.; Chicago & North Western, 24 suburban coaches with Standard Steel Car Co. and five passenger and baggage cars with Pullman Car & Mfg. Corpn.; Erie, 30 steel suburban coaches with Standard Steel Car Co. and 10 steel baggage and express cars with Pullman Car & Mfg. Corpn.; Hocking Valley, three mail and express cars with Pullman Car & Mfg. Corpn.; Manila Railroad, 20 passenger coaches with American Car & Fdy. Co.; National Railways of Mexico, 25 passenger cars with Pullman Car & Mfg. Corpn.; New York Central, 10 passenger and baggage cars with Pressed Steel Car Co., 10 dining cars with Pullman Car & Mfg. Corpn., 20 baggage cars with American Car & Fdy. Co.; 30 milk cars with Merchants Despatch, 10 multiple unit suburban passenger car bodies with Standard Steel Car Co.; Denver & Salt Lake, one steel baggage and mail car and one baggage car with American Car & Fdy. Co.; Great Northern, one gas-electric rail motor car equipped with Mack power plant and General Electric electrical equipment with St. Louis Car Co.; Yankton, Norfolk & Southern, one gas-electric passenger and baggage rail motor car with J. G. Brill Co.; Altoona & Logan Valley Electric Railway, five cars with Osgood-Bradley Car Co.; Delaware Electric Power Co., ten cars with J. G. Brill Co.; Chicago Surface Lines, 200 trucks and 33 motor car bodies with J. G. Brill Co., Nashville Interurban Railway, two interurban cars with Cincinnati Car Co.; Newell Bridge & Railway Co., two cars with J. G. Brill Co., Philadelphia & Western Railway, five passenger and smoking cars with J. G. Brill Co. It is reported that the Baltimore & Ohio has also ordered five dining cars and seven buffet cars from Pullman Car & Mfg. Corpn.

The Nickel Plate is inquiring for eight coaches, eight baggage cars, two dining cars and two cafe cars; New Haven, six dining cars; Southern Pacific, 15 chair cars; Northern Pacific, five additional mail and express cars; Chesapeake & Ohio, two club-dining cars; Chicago & Eastern Illinois, two mail and smoking cars; Chicago, North Shore & Milwaukee, 25 suburban coaches. The British Columbia Electric Railway is said to be planning the purchase of 15 new cars.

Freight Car Orders

Class I railroads, on April 15, had 142,174 freight cars in need of repair or 6.4 per cent of the number on line, according to reports filed by the carriers with the car service division of the A. R. A. This was an increase of 2,636 cars over the number reported on April 1, at which time there were 139,538 or 6.3 per cent. Freight cars in need of heavy repairs on April 15 totaled 100,642 or 4.5 per cent, an increase of 1,262 compared with April 1 while freight cars in need of light repairs totaled 41,532 or 1.9 per cent, an increase of 1,374 compared with April 1.

The Baltimore & Ohio is inquiring for 2000 steel hopper cars and 1000 steel gondola cars; Nickel Plate, 500 automobile cars; New Haven, from 40 to 50 side dump cars; North Western Refrigerator Lines, 650 refrigerator cars; Union Pacific, 500 automobile cars; Erie, 25 caboose cars; New Cornelia Copper Co., from 50 to 75 steel concentrate cars; Pittsburgh Steel Co., seven special flat cars; Roebling's Sons Co., ten gondola cars; Fruit Growers Express, 150 underframes; Piedmont & Northern, 100 underframes and superstructures for box cars.

The Canadian National ordered 1000 automobile cars from Pressed Steel Car Co. and 1000 automobile cars from Pullman Car & Mfg. Corpn.; Erie, 1000 hopper cars from Standard Steel Car Co., 250 gondola cars from Bethlehem Steel Co., 250 gondola cars from Greenville Steel Car Co., 500 box cars from General American Car Co., 500 automobile cars from American Car & Fdy. Co.; Northern Pacific, 500 automobile cars from Pacific Car & Fdy. Co.; Southern Pacific, 20 air dump cars from Magor Car Corpn., and 300 flat cars and 65 gondola cars from its own shops; Timken Roller Bearing Co., ten gondola cars from American Car & Fdy. Co.; Anglo-Chilean Consolidated Nitrate Corpn., 100 gondola cars from Magor Car Corpn.; Chesapeake & Ohio, 577 steel hopper bottom gondola car bodies on second hand trucks from Richmond Car Works; Cincinnati, Hamilton & Dayton, six Hart ballast cars from American Car & Fdy. Co.; Eastern Michigan Railways, one flat car from American Car & Fdy. Co.; Norfolk & Western, 500 automobile cars from its Roanoke shops; Pacific Fruit Express, 600 underframes for refrigerator cars from Pacific Car & Fdy. Co.; Baltimore & Ohio, 100 underframes from American Car & Fdy. Co.; Bangor & Aroostook, two underframes for caboose cars from American Car & Fdy. Co.; General Electric Co., five flat car bodies from American Car & Fdy. Co.

Bus and Truck Orders

Recent bus and trucks orders include the following: Blue Club Coach Lines

New Office Buildings

FOR THE SOUTHERN...

RECENT additions to the facilities of the Southern Railway are the large office building additions which we recently built at Atlanta.

We added five new stories to the Freight Depot Office Building and two to the Office Building, thereby more than doubling the office space.

Construction operations were carried on with practically no disturbance to the occupancy and use of the original floors.

The work was completed in less than six months.

UNITED ENGINEERS & CONSTRUCTORS
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ATLANTA LOS ANGELES BUENOS AIRES RIO DE JANEIRO MONTREAL

MAXIMUM RETURN TO CLIENTS PER DOLLAR INVESTED

of Bridgeport, four 29-passenger Mack parlor car buses; Carpenter's Rapid Transit of N. Tonawanda, 12 29-passenger Mack city type buses; Central of Georgia Railway Co., one Mack bus chassis; Central Transportation Co., Trenton, N. J., four Twin Coach suburban express; Denver Tramway Corpn., one A. C. F. urban type bus, one Model 53 White chassis with 25-passenger Bender city type body, one Model 54 White chassis with 33-passenger Bender city type body; Detroit Street Railways, 15 40-passenger A. C. F. metropolitan coaches; Interstate Power Co., Dubuque, Iowa, two 25-passenger Mack city type buses; Interstate Transit Inc., of Cincinnati, 19 29-passenger Mack parlor car buses; Logan Valley Bus Co., five 23-passenger A. C. F. urban coaches; Frani Martz Coach Co., Wilkes-Barre, one Twin Coach parlor coach; Missouri Pacific Transportation Co., three 29-passenger A. C. F. parlor car coaches, one 22-passenger Studebaker parlor car coach; five Type W Yellow observation coaches; Northern Ohio Power & Light Co., six Twin Coach parlor coaches; Oahu Railway & Land Co., two Twin Coach parlor coaches; Oklahoma Railways, Oklahoma City, one 21-passenger Studebaker street car type bus; Poughkeepsie & Wappingers Falls Ry., one A. C. F. de luxe urban coach; Richmond, Fredericksburg & Potomac, four A. C. F. chassis to be equipped with Bender Pullman bodies; Rochester Ry. Co-Ordinated Bus Line Inc., six Mack Model AB bus chassis; Rockford City Traction Co., two 40-passenger A. C. F. metropolitan coaches; Royal Blue Line Co. of Philadelphia, two 29-passenger Mack parlor car buses; Scranton Railway, three 30-passenger A. C. F. urban coaches and two 23-passenger A. C. F. urban coaches; Southwestern Transportation Co., two 22-passenger Studebaker parlor car coaches and 11 Type W coaches from General Motors; United Electric Railways Co., Providence, ten Twin Coach suburban express; Western New York Motor Lines, Batavia, two Twin Coach parlor coaches. The Gray Coach Lines, Toronto, are buying 35 new buses.

Changes in Personnel

Executive & Operative

F. W. Brown, assistant to the general manager of the Atlantic Coast Line, with headquarters at Wilmington, has been appointed assistant general manager, with the same headquarters.

C. J. Geyer, engineer maintenance of way of the Chesapeake & Ohio, with headquarters at Richmond, has been appointed assistant to the vice president in charge of operation, with the same headquarters.

J. K. Johnston, superintendent of the Tyrone division of the Pennsylvania, has been appointed assistant general superintendent, eastern Pennsylvania division. The Tyrone division will be merged with the Williamsport and middle divisions.

Dr. Alson R. Kilgore of San Fran-

The Rubber Which Assures Long-Lasting Insulation

Rubber insulation that lives long must come from *trees* that have lived long. The age-old trees that grow wild in the jungles of the Upper Amazon produce a rubber that is tougher and more lasting than the rubber which could be obtained from any of the *younger* trees now cultivated on plantations. That is why we use nothing but the wild up-River fine Para Rubber in making Okonite Rubber Insulated Wires and Cables. And, that is one of the chief reasons why you get an insulation that is always safe and free from trouble—standards rigidly maintained by Okonite for more than fifty years.

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General Electric Supply Corp., Boston, Mass.
Novelty Electric Co., Philadelphia, Pa. F. D. Lawrence Electric Co., Cincinnati, O.

Canadian Representatives:
Engineering Materials, Limited, Montreal
Cuban Representatives: Victor G. Mendoza Co., Havana

cisco, division surgeon of the Western Pacific, has been appointed chief surgeon to succeed **Dr. T. W. Huntington,** deceased. Dr. Kilgore is a graduate of the University of California and Harvard Medical School.

Eugene C. Mann, assistant secretary and assistant treasurer of the Wabash, has been elected vice president, secretary and treasurer, with headquarters as before in New York. Mr. Mann entered railway service in 1900 as train crew caller on the Kansas City Southern. He was appointed assistant secretary and assistant treasurer in 1925.

George W. Hamilton, assistant to the freight traffic manager of the Union Pacific, has been appointed assistant to the vice president in charge of traffic. He will be in charge of Interstate Commerce Commission work. Mr. Hamilton has been with the Union Pacific for 34 years. He started as a messenger in the traffic department when he was 15 years old, advanced rapidly, and in 1913 became assistant general freight agent at Omaha. During federal control he acted as secretary to the Omaha district freight traffic committee. He was made assistant to the freight traffic manager in 1927. **J. E. Davis,** assistant general freight agent in Portland since 1922, succeeds Mr. Hamilton.

Charles E. Lytle, general manager of

George W. Hamilton

the Duluth, South Shore & Atlantic and the Mineral Range, with headquarters at Marquette, Mich., has been appointed assistant to the vice president of the two roads. Mr. Lytle, who is 70 years of age, has been in the service of the roads for 41 years. **C. E. Urbahns,** general superintendent of the Soo district of the Soo Line with headquarters at Minneapolis has been appointed general manager of the Duluth, South Shore & Atlantic and the Mineral Range, with headquarters at Marquette. **Edwin H. Buhlmann,** superintendent of the Stevens Point division, with headquarters at Stevens Point, Wis., has been appointed general superintendent of the western district, a newly created district, which will consist of the Twin City Terminal, the Duluth-Superior, the Minnesota, the Winnipeg and the Missouri River divisions, with headquarters at Minneapolis. **A. N. Williams,** general superintendent of the Chicago district, has been appointed general superintendent of the newly created eastern district, which will be made up of the Chicago Terminal, the Fond du Lac, the Stevens Point and the Gladstone divisions, with headquarters as before at Minneapolis. The Chicago and Soo districts have been abolished. **Edwin D. Jones** has been appointed acting superintendent of the Stevens Point division, succeeding Mr. Buhlmann temporarily.

A. C. Shields, general manager of the Rio Grande, has been appointed vice president and general manager, with headquarters as before at Denver. **B. H. Taylor,** general traffic manager, with headquarters at Denver has been appointed vice president in charge of traffic, with headquarters at the same point

Have You Checked All

the parts on your locomotives where

HUNT-SPILLER GUN IRON

should be used to reduce excessive wear?

For
Cylinder Bushings
Cylinder Packing Rings
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Valve Bushings
Valve Packing Rings
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HOW many times have trunks and suitcases been smashed on station platforms and how often have men been injured in freight houses? . . .

ALL because trunks and suitcases were being transported over rutty and broken-out station platforms, and merchandise was being trucked over uneven and worn concrete freight house floors.

Ruts, Holes and Broken-out Places can be patched and ready for use in 36 hours with

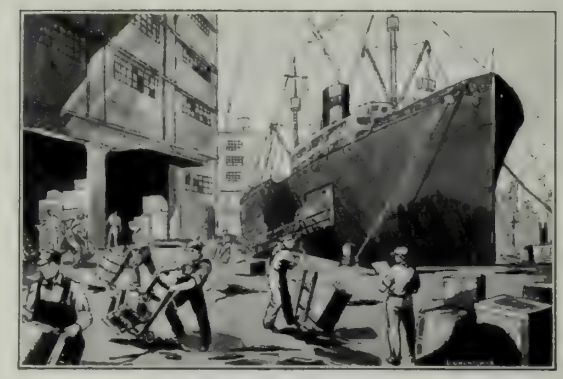
STONHARD RESURFACER

America's Foremost Floor-Repair Material

OVER 40 railroads and thousands of industrial plants already use STONHARD RESURFACER because of its many advantages.

No Air-Hammering, or Chipping or Chopping of the surface. No Heating of Materials.

Try STONHARD RESURFACER on your next repair job.



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Detroit **Cleveland** **San Francisco**

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and the position of general traffic manager has been abolished.

James B. Yohe, vice president of the Pittsburgh & Lake Erie, with headquarters at Pittsburgh, has retired and will be succeeded by **Curtis M. Yohe,** assistant to the president at Pittsburgh.

J. M. Hood, general superintendent, Akron Canton & Youngstown, has been elected vice president in charge of operation with headquarters at Akron.

The Panhandle & Santa Fe announces that **C. F. Strickland** has been appointed superintendent of the Pecos division, with headquarters at Pecos, N. M.

Leave of absence has been granted **T. J. Jones,** general superintendent of the eastern district of the Wabash, St. Louis, to serve on the Southwest Train Service Regional Board of Adjustment. Mr. Jones will be succeeded by **E. A. Sollitt,** general superintendent of the western district; Mr. Sollitt to be succeeded by **W. W. Greenland,** superintendent at Moberly, and Mr. Greenland by **R. A. Messmore.**

Thomas M. Schumacher has been elected chairman of the board of the Denver & Rio Grande Western. **William H. Williams** has been elected chairman of the executive committee.

L. C. Sprague, vice president and general manager of the Uintah, with headquarters at Mack, Colo. has resigned to become president and general manager of the Carrier Holding Corpn., New York, which controls a group of short line railroads. **W. L. Rader,** superintendent of the Uintah has been appointed general manager.

Walter E. Meyer, Harry E. Ward, president of the Irving Trust Co.; **William M. Greve,** president of New York Investors, Inc.; **F. J. Porter,** president of the Kansas City Power & Light Co., and **C. B. Stuart** have been elected directors of the St. Louis Southwestern. The last three named were nominees of New York Investors, Inc., which recently purchased the stock in the St. Louis Southwestern, formerly owned by the Kansas City Southern. The other members of the board are **Frank Bailey, Frank M. Gould, Alfred H. Swayne** and **Daniel Upthegrove.**

Elisha Lee, vice president of the Pennsylvania Railroad, has been elected to the board to succeed Samuel Rea whose term runs until 1932. Mr. Lee has been a member of the board since 1925 by a provision which allows the elected directors to appoint, annually, four other stockholders to serve as additional members of the board and as vice presidents of the company. **M. W. Clement,** vice president in charge of operation, has been named to succeed Mr. Lee as an appointed director.

William Wyer, assistant to the president, Denver & Rio Grande Western, has been elected vice president, assistant secretary and assistant treasurer of the International-Great Northern and the San Antonio, Uvalde & Gulf, with headquarters at New York.

Charles L. Bradley, president of the Cleveland Union Terminal Co., has been elected chairman of the board of the Erie, a newly created office. Previously Mr. Bradley was elected a director, filling a vacancy caused by the withdrawal of **F. D. Underwood,** retired president. Mr. Bradley will continue his present post as president of the Cleveland Union Terminal if the Interstate Commerce Commission permits, but will resign as director of the Nickel Plate. The creation of the office of chairman of the board of the Erie leaves John J. Bernet, president, free to devote his whole time to the operating reorganization of the road, and to give more attention to his duties as chief railroad adviser to O. P. and M. J. Van Sweringen. Mr. Bradley, the new chairman, first became associated with the Van Sweringens when they entered the railroad field. He will devote himself to the financial management of the Erie, with headquarters at Cleveland.

Financial and Legal

George H. Pabst, Jr., assistant treasurer of the Pennsylvania, has been appointed treasurer to succeed **Henry H. Lee**, who resigned to become president of the Pennroad Corpn. Mr. Pabst was born in New York City in 1888 but received his education in the public schools of Philadelphia, where his family moved shortly after his birth, and in the Evening School of Accounts & Finance of the University of Pennsylvania. He entered the service of the Pennsylvania in 1906 as a clerk in the accounting department. Three years later he was transferred to the office of Samuel Rea, then second vice president. He was appointed chief clerk to A. J. County, special assistant to the president in 1917, and to the newly created position of analyst in the treasury department in 1925. He was appointed assistant treasurer in 1926.

Fletcher Rockwood, general attorney for the Great Northern, with headquarters at St. Paul, has resigned to join Carey & Kerr, Portland, Great Northern attorneys for Oregon.

Ashby M. Warren has been appointed district attorney for Kentucky for the Louisville & Nashville, with headquarters at Louisville.

E. A. Boyd, general attorney for the Orient, with headquarters at Wichita, has been appointed commerce attorney for the Santa Fe, with headquarters at Chicago. **Gerald E. Duffy**, attorney for the Santa Fe at Chicago, has been named commerce attorney there.

—Blank-Stoller, Inc.
George H. Pabst, Jr.

The Canadian National announces that **A. E. Plant**, controller of the Atlantic region with headquarters at Montreal, has been appointed European controller, with jurisdiction over accounting in Great Britain and on the Continent, with headquarters at London. **G. N. Palmer**, auditor of disbursements of the Atlantic region, has been appointed to succeed Mr. Plant. Mr. Palmer will be succeeded by **B. W. Cummings**, assistant to the controller. **T. H. Walsh** will succeed Mr. Cummings.

The Milwaukee announces that the office of **T. W. Burness**, secretary, has been moved from Milwaukee to Chicago.

Purchases and Stores

The Northwestern Pacific announces that **F. W. Taylor** has been appointed purchasing agent, with headquarters at San Francisco, to succeed **H. W. Ellicott**, retired.

W. J. Smith, tie and timber agent of the M-K-T with headquarters at Denison, Tex., has resigned. He has organized the W. J. Smith Wood Preserving Co., Denison.

C. H. Vandegrift has been named division storekeeper, Albuquerque division, of the Santa Fe, with headquarters at Gallup, N. M., to succeed **A. M. McHenry**, who has been transferred to Winslow, Ariz.

The Chicago & Alton announces that

The Bird-Archer Company

1 E. 42nd St., New York City

Specializes in
CHEMICALS FOR BOILERS
RAILROAD
STATIONARY
MARINE

We make these Chemicals for you-based on an analysis of water used in your boilers.

This is a Briquette—weighs one pound and has a minimum of moisture. Doesn't it appeal to you over the usual run of compounds?

PHILADELPHIA CHICAGO ST. LOUIS MONTREAL WINNIPEG
BUENOS AIRES MANILA AUSTRALIA

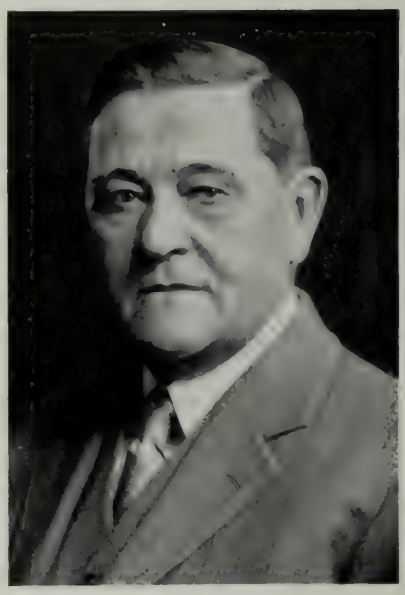
H. G. Kaill

E. L. Murphy, assistant general storekeeper with headquarters at Bloomington, has resigned and will be succeeded by **F. C. Riley,** traveling storekeeper and maintenance inspector.

Traffic

Earl W. Ireland, assistant general passenger agent of the Chicago Great Western at Kansas City, has been appointed general passenger agent with headquarters at Chicago to succeed **R. A. Bishop,** resigned. Mr. Ireland has been in the railroad business for 25 years, all but four of them with the Great Western. He entered railway service as a ticket seller on the Illinois Central and later became assistant city passenger agent for the Great Western at Chicago. He then was appointed city passenger agent, general agent and, early in the present year, assistant general passenger agent at Kansas City.

Julian Nance, general agent, freight department of the Union Pacific, at Kansas City, has been appointed general freight agent there to succeed **H. G. Kaill,** retired. Mr. Nance entered the Union Pacific service as station baggageman at Minneapolis, Kan., and served for a number of years as traveling freight agent and commercial agent with headquarters in Kansas City. He returned to Kansas City two years ago from Dallas, where he was general agent. Mr. Kaill has been in railroad work for 51 years, the last 45 of them being with the Union Pacific. He was born in London, England, and attended the public schools of Kansas City, entering railway service with the Missouri Pacific when he was 13. He was appointed soliciting freight agent on the Union Pacific in 1883 and was steadily promoted until, in 1920, he became general freight agent at Kansas City, a position he held until his retirement. **R. A. Peters,** general agent at New Orleans, has been appointed general agent of the freight department at Kansas City to succeed Mr. Nance. **G. J. Garmon** has been named to succeed Mr. Peters at New Orleans.



Julian Nance

FABLE AND FACT

ONCE upon a time there was a farmer who believed that more and better horses were the solution of the farm problem. So he bought two fine teams. Now his acreage was small and although one team could more than handle his output, two teams looked well and impressed the neighbors.

But when drought and hard times swept the country, our farmer could neither feed nor sell his fine teams. And with scant fodder upon which a single team might have survived, two teams starved, sickened and died. That was the end of that experiment.

As with excess horses so with excess railroads. In order to survive and render satisfactory service railroads like other businesses must be profitable. Construction of new lines not required to handle the traffic of a region only adds to the expense of handling the traffic of that region. Eventually this must be reflected in a loss of earning power of the pioneer railroad and in curtailment of the total combined service and facilities of both the new and the old lines.

SOUTHERN PACIFIC

Edward A. Niel has been appointed traffic manager of the Buffalo, Rochester & Pittsburgh, with headquarters at Rochester, N. Y., the position of freight traffic manager having been abolished. **Harry E. Huntington,** general passenger agent at Rochester, has been appointed assistant traffic manager. **Jerrold P. DeVaughn,** division passenger agent at Buffalo, has been appointed general passenger agent at Rochester. **Everett D. Davis,** assistant freight traffic manager, has resigned to engage in other business, and the duties of that office will be assumed by the assistant traffic manager.

H. A. Weaver, general freight agent for the Kansas City Southern at Kansas City, has been appointed freight traffic manager in charge of tariffs, rates and divisions. **G. B. Wood,** general freight agent at Kansas City, has been appointed freight traffic manager in charge of solicitation. **J. R. Mills,** assistant general freight agent, has been appointed assistant freight traffic manager. **L. V. Beatty** and **J. O. Hamilton,** assistant general freight agents at Kansas City and Texarkana respectively have been appointed general freight agents at the same points.

J. W. Brennan, general agent of the freight and passenger departments of the Missouri Pacific at Washington, resigned May 3 to become central traffic manager of the Transcontinental Air Transport, Inc., with headquarters at St. Louis. He is succeeded by **F. E. Pennington,** acting division passenger agent at Memphis.

P. J. McGrath, chief clerk to the mail and express traffic manager for the Southern Pacific, Pacific lines, has been appointed assistant mail and express traffic manager. **M. I. Goldsmith** and **W. R. McLean** have been appointed assistants to mail and express traffic manager, with headquarters in San Francisco.

The Canadian National announces that **H. A. Carson,** district freight agent at Toronto, has been appointed division freight agent at Ottawa, Ont. **Hector Lapointe,** chief clerk at North Bay, has been appointed traffic representative at Montreal.

W. A. Sutton has been appointed manager of mail, baggage and express traffic of the Pere Marquette, with headquarters at Detroit, succeeding **L. E. Mueller,** deceased.

Mechanical

F. I. Nesbit, general foreman of the Spokane International, with headquarters at Spokane, has been appointed master mechanic at Spokane to succeed **C. H. Prescott.** Mr. Prescott retired from active duty April 1 after 23 years of service, but will remain with the company in a consulting capacity.

The Erie announces that **R. V. Blocker,** mechanical superintendent, with headquarters at Meadville, Pa., has been appointed assistant superintendent of motive power with headquarters at Hornell, N. Y. **George Thibaut,** assistant mechanical superintendent, with headquarters at Jersey City, has been named district master mechanic, with headquarters at Seacaucus, N. J. **F. H. Murray,** mechanical superintendent at Hornell, has been appointed district master mechanic there. **W. A. Carlson,** general master mechanic, with headquarters at Hornell, has been appointed district master mechanic at Meadville. The positions of mechanical superintendent, assistant mechanical superintendent and general master mechanic have been abolished. **Edward Pool** has been appointed master mechanic of the Delaware division with headquarters at Port Jervis, N. Y., to succeed **J. H. Winfield,** who has been granted a leave of absence.

The Illinois Central announces that **D. W. Saunders,** general foreman in the locomotive department at Chicago, has been appointed master mechanic of the Springfield division, with headquarters at Clinton, Ill.

JORDAN SPREADER
"Does the Work of an Army of Men"
SNOW PLOW ★ ICE CUTTER ★ DITCHER
UNIVERSALLY STANDARD
O.F. JORDAN COMPANY
WALTER J. RILEY, PRESIDENT
EAST CHICAGO, INDIANA

JORDAN
SPREADER - DITCHER

Indispensable in mines, on railways, public works, industrial plants, etc.

Built in Standard and Narrow Gauge Sizes

CONLEY

Solid Manganese
Self Guarded

SPRING FROGS

SHOWING SPRING FROG IN SERVICE

Are giving excellent service under severe traffic conditions on Railroads using them.

Twenty years successful service by CONLEY TYPE FROGS have demonstrated their merit for safe and economical service.

CONLEY FROG & SWITCH CO.

Memphis, Tenn.

J. F. Kimbell has been appointed master mechanic of the New Mexico division of the Southern Pacific, with headquarters at Tucumcari, N. M., succeeding **E. Gordon**, retired.

Civil

Richard Brooke, assistant engineer maintenance of way of the Chesapeake & Ohio, has been appointed engineer maintenance of way, with headquarters at Richmond, to succeed **C. J. Geyer. J. E. King**, general supervisor bridges and buildings, succeeds Mr. Brooke. **A. E. Botts**, division engineer, Huntington division, with headquarters at Huntington, has been named to succeed Mr. King, and will be succeeded by **M. I. Dunn, Jr.**, assistant division engineer at Huntington. **R. L. Kittredge** has been named to succeed Mr. Dunn as assistant division engineer.

C. B. Huffman, assistant engineer on the Missouri Pacific at Falls City, Neb., has been appointed division engineer of the central division at Van Buren, Ark.

Lyde A. Henry, sanitary inspector for the Missouri Pacific at Little Rock, has been appointed landscape engineer with headquarters at St. Louis.

Edwin F. Dawson, resident engineer of the Reading, with headquarters at Philadelphia, has retired after 47 years' service in the engineering department of that road. **Walter Sebastian** has been appointed to succeed Mr. Dawson. **George H. Seitz** has been appointed resident engineer with headquarters at Reading to succeed **Paul Voorhees.**

The Clinchfield Railroad announces that the office of chief engineer has been abolished and **V. B. Elliott** has been appointed construction engineer in charge of the engineering department, with headquarters at Erwin, Tenn.

F. P. Sisson, division engineer of the Grand Trunk Western System, has been appointed principal assistant engineer, with headquarters as before at Detroit. **A. N. Laird**, assistant engineer at Detroit, has been named bridge engineer at the same point.

W. H. Moulthrop, office and field manager, Southern Pacific, has been appointed assistant to the chief engineer, with headquarters at San Francisco. **Walter Harris** has been appointed engineer train lighting, heating and ventilation, with headquarters at West Oakland to succeed **J. J. Hack**, deceased.

F. H. Rothe, supervisor on the Pittsburgh division of the Pennsylvania, has been appointed assistant engineer in the office of chief engineer, maintenance of way, western region.

The New Haven announces that **Edward W. Shea** has been appointed signal supervisor of the Providence division with headquarters at Providence, to succeed **S. H. Wright**, deceased.

H. L. Johnston, acting district engineer of the Vancouver Island division of the Canadian National, with headquarters at Victoria, B. C., retired April 1. **S. J. Munroe**, division engineer of the Kamloops division, with headquarters at Kamloops, has been appointed to succeed Mr. Johnston. **M. M. Churchill**, roadmaster of the Clearwater subdivision of the Kamloops division, with headquarters at Kamloops Junction, B. C., has been appointed to succeed Mr. Munroe temporarily.

The Missouri Pacific announces that **R. H. Carpenter**, assistant engineer at St. Louis, has been transferred to Poplar Bluff to succeed **C. E. Bishop**, who has been named motor transportation supervisor for the Missouri Pacific Transportation Co., with headquarters at Poplar Bluff.

Obituary

William A. Roe, manager of the Lackawanna Terminal Warehouses, Inc., now under construction in Jersey City and Hoboken, died at St. Joseph's Hospital, Paterson, April 20. Mr. Roe was recovering from an operation for appendicitis. A blood clot was the immediate cause of his death.

John D. Isaacs, nationally known engineer and for many years chief consulting engineer of the Southern Pacific, died April 26 at San Diego, aged 80.

Walter R. Baker, who retired as secretary and assistant to the president of the Canadian Pacific at Montreal in 1917, died there April 1. Mr. Baker was 77 years of age.

Martin Devney, superintendent of the St. Louis and Henderson divisions of the Louisville & Nashville, died at Evansville, Ind., April 10. Mr. Devney was 67 years of age. He was born in England but came to Middleboro, Ky., learned telegraphy and became an operator on the L. & N. in 1880. He was promoted to superintendent of the St. Louis and Henderson divisions in 1921.

John T. Logan, president of the National Lumber & Creosoting Co., Texarkana, died in St. Louis, April 12.

John W. Stevens, division engineer of the New York Central, with headquarters at Weehawken, N. J., died at his home in Jersey City, April 8.

Charles Philip Coleman, former president of the Worthington Pump & Machinery Corpn., died April 13 at Washington, aged 64. At the time of his death Mr. Coleman was president of the Mt. Hope Bridge Co. and the Sandusky Bay Bridge Co. He was with the Lehigh Valley from 1887 to 1898, with the Bethlehem Steel Co. for about a

year and then became purchasing agent for the Lehigh Valley, from which position he resigned in 1903.

Joseph B. Stewart, general agent in the freight department of the Delaware & Hudson at St. Louis, died at the St. Louis Mullamphy Hospital April 8 following an operation.

W. C. Hattan, chief engineer of the Clinchfield, with headquarters at Erwin, Tenn., died there March 25 following an operation for appendicitis. Mr. Hattan was born at Kerrs Creek, Va., in 1875. He was educated at Washington & Lee University and became rodman and inspector of materials and masonry inspector on the West Virginia Short Line in 1899. He was appointed division engineer, Elkhorn extension, of the Carolina, Clinchfield & Ohio in 1912 and general superintendent in charge of construction of the M.K.T. belt line and terminals at San Antonio in 1916. Mr. Hattan became chief engineer of the Clinchfield Railroad (then the Carolina, Clinchfield & Ohio) in 1920, which position he held until his death.

Supply Trade Notes

William C. Dickerman, vice president in charge of operations of the American Car & Foundry Co., has been elected president of the **American Locomotive Works** to succeed William H. Woodin. Mr. Dickerman also was elected a director. Mr. Woodin, retiring president, will remain chairman of the board. Mr. Dickerman, who was graduated from Lehigh University in 1896, has had a broad industrial experience. He began in the auditing, purchasing and engineering departments of the Milton Car Works, Milton, Pa., of which his father was a partner and general manager. He was appointed a district manager of the American Car & Foundry Co., when it absorbed the Milton Works. He was appointed sales agent of the American Car & Foundry Co., in 1901 and later general sales agent. He was elected vice president of the American Car & Foundry Co. in 1905 and was placed in charge of operations in 1919 in which capacity he has since served.

J. J. Saelens, formerly of the Union Carbide Sales Co., has been appointed manager of a new department organized by the **Oxweld Railroad Service Co.,** for the sale of special equipment to railroads. This equipment includes the Oxweld railroad lamps, formerly sold by the Union Carbide Sales Co., Carbic flood lights and generators, Prest-O-Lite motor car head lights and supplies for use with these products.

The Pullman Car & Mfg. Corpn., announces the removal of its offices from 25 Broadway to 52 Vanderbilt ave., New York.

Poor & Co., Chicago, has acquired approximately 95 per cent of the stock of the Rail Joint Co., New York, and **Fred A. Poor** has been elected chairman of the board of that company. The Rail Joint Co. will continue to be operated as a separate and independent company as in the past, with **V. C. Armstrong** as president.

The Industrial Brownhoist Corpn., Cleveland, has purchased the McMyler Interstate Co., Bedford, Ohio. This purchase includes the business and manufacturing operations of the McMyler company with all drawings and records, which will be moved to Cleveland, but does not include the plant, machinery and materials.

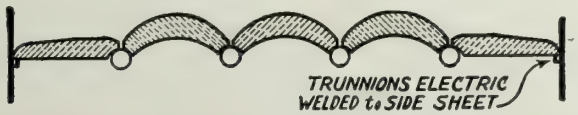
The Central Alloy Steel Corpn. Massillon, Ohio, has installed at its Canton plant a large nitriding furnace to be used as a service to promote the use of nitralloy. This metal is case hardened by the nitriding process after it has been made into a finished part.

The Louisville Frog, Switch & Sig-

TRUE ECONOMY

Can be Secured in Steam Locomotives

by the use of



ECONOMY BAFFLE WALLS

THEY INSURE MAXIMUM LIFE OF BRICK WITH A MINIMUM WEIGHT ON THE ARCH TUBES

THE ECONOMY METHOD of SUPPORTING SIDE BRICK on TRUNNIONS ELECTRICALLY WELDED to the SIDE SHEET ELIMINATES the liability of the side brick dropping into the fire bed and the necessity of straightening or replacing bent arch tubes.

THE ECONOMY METHOD provides radiant heat near the side sheets, causing more complete combustion in this "COLD" area. It also PREVENTS the accumulation of coke and slag in the "pockets" resulting when inclined side brick are used, thus increasing the active firebox heating surface.

ECONOMY ARCH COMPANY

1843 RAILWAY EXCHANGE BUILDING **ST. LOUIS, MISSOURI**

Distributors of Locomotive Arch Brick Manufactured by
EVANS & HOWARD, LACLEDE-CHRISTY, A. P. GREEN and NILES FIREBRICK COMPANIES

nal Co., Louisville, announces that it now has these district representatives: **T. F. Carlin**, 631 Pennsylvania avenue, N.W., Washington, D. C.; **J. R. Hayward**, 512 Liberty National Bank building, Roanoke; **L. M. Hartzell**, Union Trust building, Cincinnati; **E. A. Mann**, 1603 Monadnock building, Chicago; **T. L. Mount**, 136 Liberty street, New York; **L. R. Payton**, 1944 Railway Exchange building, St. Louis; **C. H. Quinn**, 681 Market street, San Francisco; **C. W. Stevens**, Mutual building, Richmond; and **W. J. Church**, 1803 Canal Bank building, New Orleans.

Robert H. Ripley, senior vice president of the American Steel Foundries, has been elected also president of the **General Steel Castings Corpn.** of Philadelphia.

Achille P. Grenier, St. Paul, has been appointed district manager in Minnesota, for the **Stuebing Cowan Co.**, Cincinnati.

The Pressed Steel Car Co. has moved its Chicago office to suite 625, Peoples Gas building, 122 South Michigan avenue.

The Marquette Railway Supply Co., Chicago, announces that **Eugene M. Richey**, formerly vice president of the Standard Forgings Co., Chicago, has been elected president of the former company.

The Johns-Manville Corpn. announces the removal of its western division headquarters from South Michigan ave. and Eighteenth st. to 230 North Michigan ave., Chicago.

George T. Paraschos has been appointed New England representative of the **Davis Brake Beam Co.**, Johnstown, Pa., with headquarters at 1107 Boylston st., Boston.

B. H. Witherspoon, formerly district manager of the Remington Rand Business Service at Los Angeles, has been elected president of the **Pittsburgh Testing Laboratory**, Pittsburgh. **A. R. Ellis** has been elected vice president in charge of operations. He has been with the Pittsburgh Testing Laboratory since 1910, and has been general manager and director since 1921.

The American Brake Shoe & Foundry Co., announces the removal of its New York offices from 30 Church st. to the New Central Building, 230 Park ave.

The Fairfield Engineering Co., Marion, Ohio, designer and manufacturer of Fairfield locomotives, cinder and coal conveyors, has opened a branch office in the Transportation bldg., Chicago. **Roy Franklin Repasz**, formerly with the William Robertson Co., has been appointed manager of railway sales and will make his headquarters in the new Chicago office.

Henry A. Barren, vice president in charge of operations of the **American Steel & Wire Co.**, has resigned, after 52 years with that company.

The Railroad Supply Co., Chicago, has purchased the railroad signal and supply departments of the L. S. Brach Mfg. Corpn., Newark, and has combined them with the former company. **G. Gort**, vice president and sales manager of the L. S. Brach Corpn., has been appointed sales representative of the Railroad Supply Co., with headquarters in New York.

The Fairmont Railway Motors, Inc., Fairmont, Minn., announces the removal of its New York offices from 1845 to 2612 Grand Central Terminal Bldg.

The Union Switch & Signal Co., announces that **A. L. Humphrey**, president, has been elected chairman of the board and **G. A. Blackmore**, vice president and general manager, has been elected president.

The Federal Cement Tile Co., Chicago, has organized a railway sales department and has appointed as manager **H. M. Butters**, formerly manager of the railroad sales department of Beaver Products, Inc.

The General Railway Signal Co., Rochester, N. Y. has moved its New York office from 100 East Forty-second street to 230 Park ave.

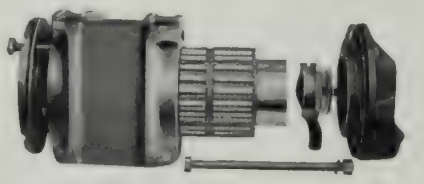
SPECIALISTS IN FORGED

Center Plates
Draw Bar Yokes
Knuckle Pins
Air Brake Pins
Brake Jaws
Journal Box Wedges
and
Miscellaneous Forgings

Send us your specifications

Steel Car Forge Company

Pittsburgh New York Chicago Baltimore



MELCHER
RAILWAY ROLLER JOURNAL BEARING
100,000 miles between inspection and lubrication periods.
RAILWAY MOTORS CORPORATION
DE PERE, WISCONSIN

'RALSTON BUILT'

Steel and Composite Cars

Completely rebuilding large numbers of steel cars in record time is an achievement that Ralston Steel Car Company has repeated time and time again.

This is possible only through our excellent facilities and well-balanced program, which, together with skilled workmen and competent engineers, keep the cars moving through the plant on regular schedule.

THE RALSTON PLANT is equipped to build New Cars, to Rebuild Old Cars, to Repair and to supply repair parts. All materials and work of the highest QUALITY and performed under expert Engineering Supervision.

RALSTON STEEL CAR CO.
COLUMBUS, OHIO

Now you can get
Balsam-Wool
Refrigerator Car Insulation
9 feet wide

THE increased demand for Balsam-Wool has required the construction of another mill. Among the improved equipment which we have installed is a machine manufacturing a 9 foot width which you can now secure in 50 foot rolls.

You can now stock this width for repairs on refrigerator cars to take care of the full car height.

Balsam-Wool gives you *more insulating value per dollar* than any other refrigerator car insulation.

It is highly *efficient*—92% "still" air.

Its *lightness* saves 1000 to 2500 pounds dead weight per car—an important consideration.

Vibration and strains of service are taken care of by 20% stretch.

Balsam-Wool is durable—maintenance costs are low. Its liners are *unstitched*—windproof and waterproof.

And it is easily applied by standard methods.

Balsam-Wool comes in rolls of all widths up to 9 feet. Specify it for new cars or rebuilding.

WOOD CONVERSION COMPANY
Insulation Division of Weyerhaeuser Forest Products
Mills at Cloquet, Minnesota
Railroad Sales Offices: Chicago, 360 N. Michigan Ave.
New York, 101 Park Ave.—Washington, D.C., 531 14th St., N.W.—Detroit, 3084 W. Grand Blvd.
Manufacturers of the Balsam-Wool line of Industrial Insulations for Refrigerator Cars, Passenger Cars, Motor Buses, Airplanes, Domestic Refrigerators. Also makers of Balsam-Wool Standard Building Insulation and Nu-Wood Insulating Board

IF YOU

ARE NOT USING

SESSIONS-STANDARD

DRAFT GEAR PROTECTION

for cars and lading

you are paying more than you should for damage claims and car repairs.

Ask us why

STANDARD COUPLER CO.

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Transportation

The National Monthly of the Transportation Industry

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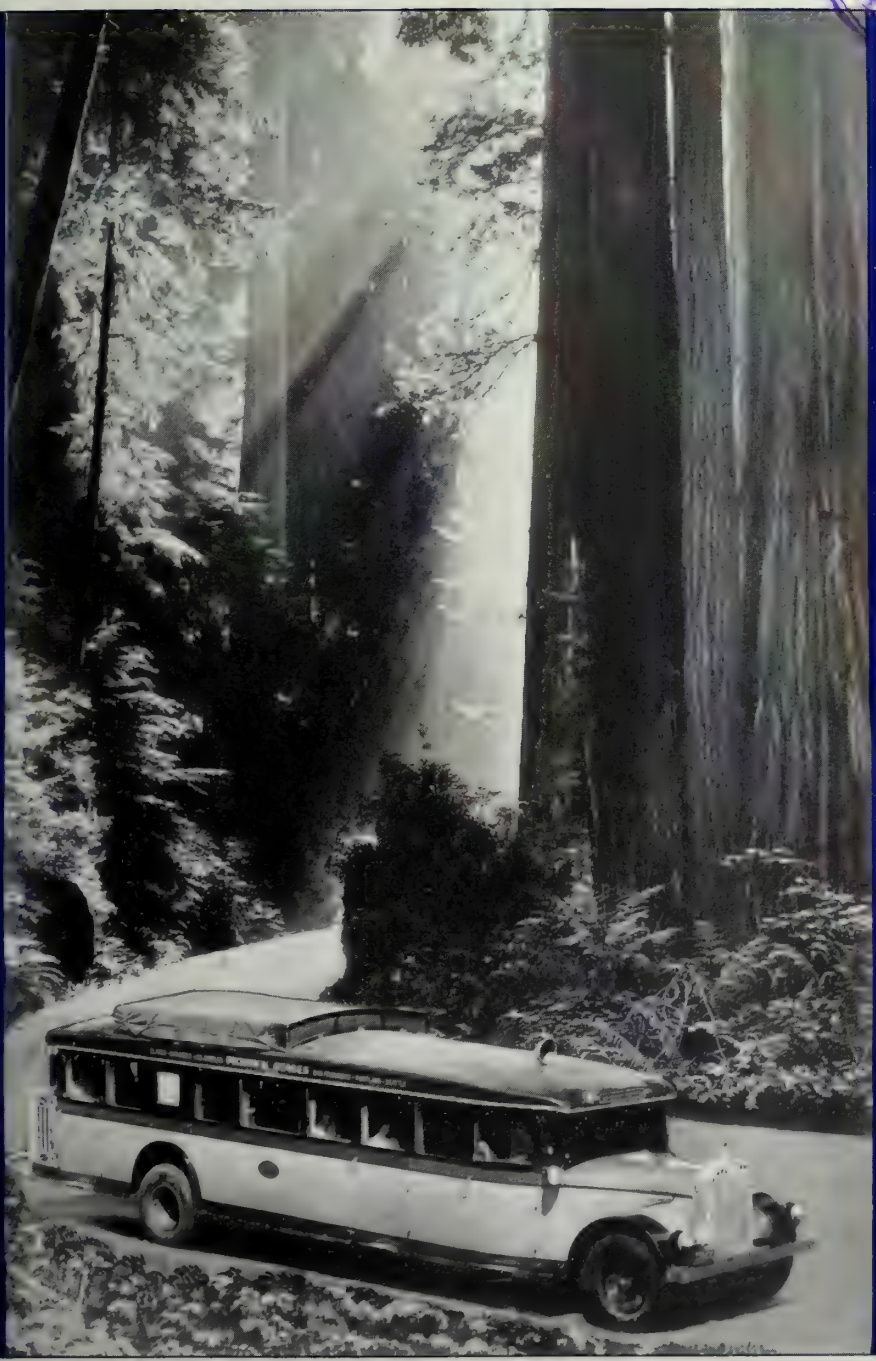


Vol. IV June 1929 No. 6

Fairmont AND Mudge

RAILWAY MOTOR CARS

On the Job—

in the daily grind, year in and year out, Fairmont and Mudge Motor Cars deliver a steady, reliable performance, to the complete satisfaction of railroad operators all over the world.

The name and fame of these cars are generally accepted as evidence of superiority but, after all, it is "Performance on the Job that Counts!" And of this performance the proof is clear and abundant. *Over half of all motor cars in use are Fairmont Products.*

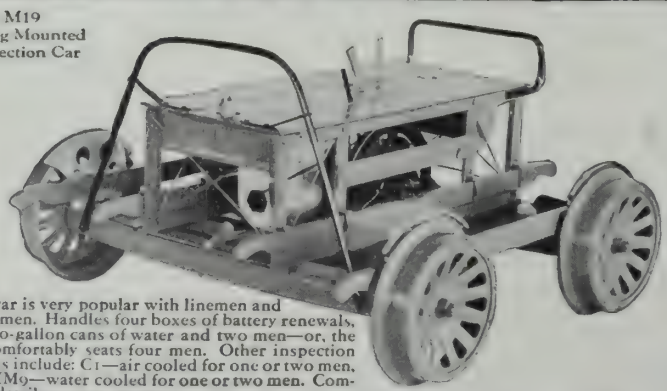
FAIRMONT RAILWAY MOTORS, INC.
General Offices: FAIRMONT, MINN.
General Sales Offices: CHICAGO, ILL.
Branch Offices: New York City Washington, D. C. St. Louis San Francisco New Orleans Winnipeg, Can.
BALDWIN LOCOMOTIVE WORKS,
Foreign Representative

FAIRMONT AND MUDGE PRODUCTS

Section Motor Cars: A2—M2—S2—M14—WS2. Inspection Motor Cars: E14—C1—M19—MM9. Weed Mowers and Discers: M24—M23. Weed Burners: B (M27)—C (M27). Gang and Power Cars: MT2—A4—A5. Push Cars and Trailers: T1—T2—T3—T12—T20—T24—T25. Roller Axle Bearings: Ringseald-Axlsaver—Bower—Hyatt—Timken. Motor Car Engines: QB—PHB—PHA—QHB and W. Wheels and Axles.

Performance on the Job Counts

Performance on the job is the PROOF *that Counts—*



M19
Spring Mounted
Inspection Car

This car is very popular with linemen and signalmen. Handles four boxes of battery renewals, two 10-gallon cans of water and two men—or, the car comfortably seats four men. Other inspection models include: C1—air cooled for one or two men, and MM9—water cooled for one or two men. Complete details at your request.

THE RAILROAD WORLD KNOWS

FROM COAST TO COAST

the nation's food rolls through a tunnel lined with ice . . . . *the refrigerator car*

THIS tunnel—made up of the side walls, roofs and floors of over 180,000 refrigerator cars has been sealed and protected largely by J-M insulation. The rapid development of the refrigerator car—the efficiency and economy of its operation, the revenue of this important unit has been dependent upon insulation.

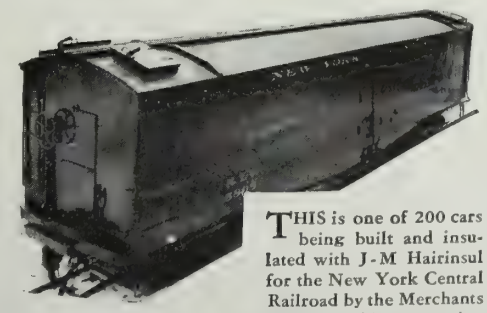
The six major qualifications of refrigerator car insulation — low thermal conductivity, strength, adaptability, light weight and imperviousness to moisture are all provided for by J-M Insulation — at the most economical cost.

Among the many types of insulation manufactured by Johns-Manville, there are three adapted to cover every type of refrigerator car. They are Hair Felt, Hairinsul and Dry Zero Blanket. Moisture, the greatest hazard to other car insulants will not affect these materials. They will not rot or deteriorate under the most severe moisture conditions, and will retain their insulating worth many years longer than other insulants.

The low thermal conductivity of these insulants has been conclusively demonstrated by all tests made by the Bureau of Standards. Dry Zero Blanket, made to meet the most exacting refrigerator car requirements, has the lowest conductivity of any commercial insulant.

J-M Insulants all combine strength and durability with light weight. The extreme light weight of these insulants makes possible reduction of the total weight of a refrigerator car 1500 to 2000 lbs.

Any J-M Insulation can be economically applied to any of the various types of modern car construction. They are adaptable to old cars as well as new, are easily handled and are easily applied.



THIS is one of 200 cars being built and insulated with J-M Hairinsul for the New York Central Railroad by the Merchants Dispatch Transportation Co.

Johns-Manville, pioneers in refrigerator car insulation, are today prepared to meet every insulation requirement and are ready to help engineers reduce transportation costs of perishable foodstuffs to a minimum. The facts about the construction of these insulants can be had by mailing the coupon below.

JM

Johns-Manville

REFRIGERATOR CAR INSULATION

JOHNS-MANVILLE CORPORATION
New York Chicago Cleveland San Francisco Toronto
(Branches in all large cities)

Please send me information about J-M Refrigerator Car Insulation.

Name.....

RR-82-6

Address.....

THE PATRICIAN — 7c *per passenger mile*

PLANE "B" — 9½c *per passenger mile*

PLANE "C" — 10c *per passenger mile*

Cabin of the PATRICIAN

The PATRICIAN *lowers costs, increases profits!*

LARGE scale operation at a profit, essential to great air transport systems, is brought within easy reach by the PATRICIAN, the transport plane of *greatest capacity, speed and economy.*

Carrying twenty passengers with baggage at an effortless cruising speed of 125 miles per hour, the PATRICIAN brings the cost of commercial air transportation down to a new low level—less than 7c PER PASSENGER PER MILE. This figure, which includes interest on investment, depreciation, insurance, personnel, maintenance and all other charges, is *20% to 30% lower than with other proven transport planes.*

The PATRICIAN draws patronage to the transport line. Swift and secure, yet withal, quiet, roomy, cheerful, it is destined to make air travel genuinely popular. The master design and rugged construction that is Keystone's, plus the great reserve power of its three Wright "Cyclone" engines, give the PATRICIAN matchless performance and reliability hitherto unattained.

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Transportation

(Reg. U. S. Patent Office)

The National Monthly of the Transportation Industry

JUNE, 1929

VOLUME FOUR NUMBER SIX

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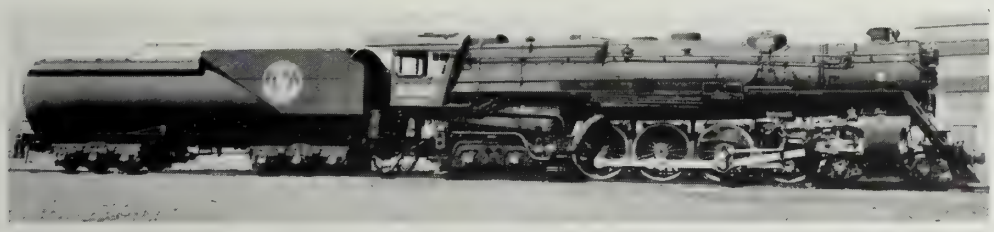

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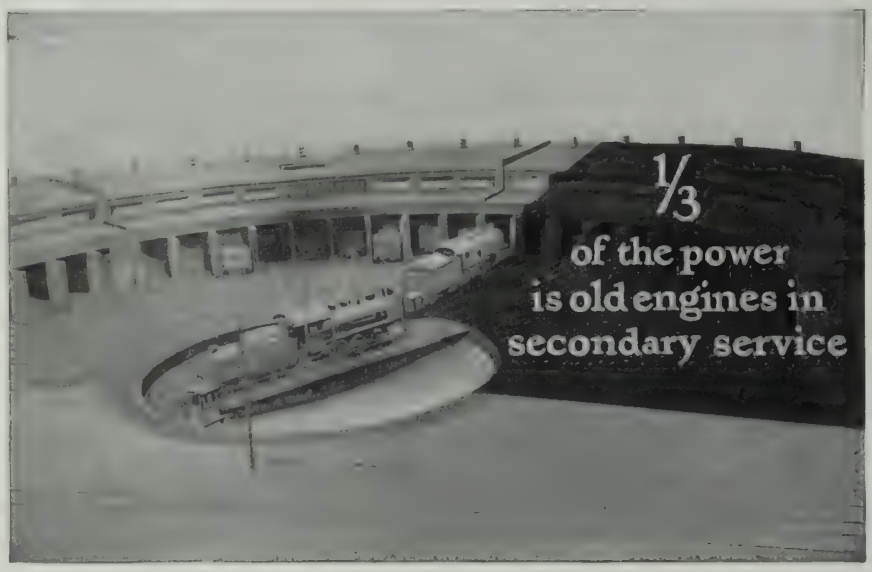
1/3 Of Road Power Is In Secondary Service



ON one large railroad system the secondary service locomotives comprise 33% of the road power. They consist of 11 types of an average age of 21 years.

They have a limited utility; they lack standardization; and their fuel consumption and maintenance costs are high.

One single design of light-wheel-load locomotive embodying the Super-Power principles could replace all of these obsolete types, and the annual saving in fuel and maintenance would equal 20% of the purchase price.

LIMA LOCOMOTIVE WORKS
Incorporated
LIMA, OHIO

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The First View of San Francisco, From Oakland Mole.

Keys to the Western Coast

Things Divisions V and VI Should Learn While on the Way

By Charles Dillon

If the time-worn formula were to be used in writing this piece we should begin by telling you that "the 'steenth annual conventions of Divisions V and VI, A.R.A., are to be held in California this year. Delegates are going to the West Coast on special trains, the first time these bodies ever have met west of Chicago," and so on to the dismal ending. All this, obviously, you must have discovered some time ago; and if you haven't you'd better get off at the next station.

But, one thing it is necessary to set down here: A good many of you may never have been in California. As seasoned railroaders you know all about the forthcoming conventions; you may even be on one of the programs for a speech, and there is no law against it whatever the audience may think; but you certainly do need a few friendly pointers about the country you are going to visit. You may have got in a lot of mileage on the board-walk at Atlantic City in bygone years, and consequently imagine yourself competent to get around without a guide, but you are about to encounter new and peculiar experiences.

Speaking now to the delegates to the convention of Division VI: If you are traveling over one of the northern routes your train journey will end at Oakland mole where you are to board the big ferryboat for San Francisco, across the bay. You can't get lost; there's nowhere else to go.

This is where you should unpack your adjectives and exclamation points; you're going to need them constantly. Superlatives will be supplied free. Indeed, the first San Francisco man you meet will congratulate you, especially if you tell him you won't have time to go to Los Angeles. His face brightens, his eyes shine, he smiles all over everything. Don't misunderstand us; this San Francisco gentleman isn't going to make any nasty cracks about the state's largest city. He is merely going to suggest how fortunate you are in coming to his town. Whatever you do, *don't call it 'Frisco.*

Before going across the bay it might be well to put on your overcoat, but don't spoil your chances for a good time by drawing attention to what you foolishly imagine is fog. There's no fog in San Francisco; it's only low-lying clouds. Whatever it is, it disappears early in the morning, and presently the sunshine, about which you may have heard a thing or two as belonging exclusively to the West Coast, begins to get in its work, and you remove your raglan. Don't get too far away from it, however. Along about 4 o'clock in the afternoon it will come in handy when the unusual coolness begins, even upon a night in June. Here's someone breaking in on us:

Visitors to San Francisco are fortunate. They journey hither by a storied route. If they come by train, by motor car or airplane, prairie and mountain and purple desert unfold before them. If they come by sea, sunny, magic lands are touched. In either case they are prepared for an exotic city at their journey's end.

And the very first glimpse is a surprise. The overland or oversea traveler beholds San Francisco from across the harbor—sees the tumbled hills, the soaring skyline in radiant perspective. Up and down her hills the city clambers,

as if her very structures were eager to climb as high as possible and welcome the visitor.

The city of San Francisco proper covers the northern end of its peninsula in a rough square of 7 by 7 miles. The population of this city proper is approximately 650,000.

That was the Chamber of Commerce broadcasting.

You ride up Market street, or walk if you wish—it isn't very far—to the Palace Hotel. This is headquarters for Division VI, as someone may have told you, so you register. Of course if you didn't reserve a room ahead of time, well, it's just too bad, but the town has oodles of fine hotels. If, however, you do wedge yourself in at the Palace you'll notice one fine thing about the management and employes: They don't try to make you feel at home. They just let you alone. If you want anything you're entitled to have you'll get it. But, as we said a moment ago, San Francisco has many hotels. Stand by for a moment, please:

The hotels of San Francisco are more numerous, in proportion to population, than those of any other of the world's noted cities. San Francisco's situation, directly in the flow of international travel, brings here the peoples of every race. Several of its hostelries have as wide fame as the Savoy in London or Shepherd's in Cairo. With 1200 licensed hotels, San Francisco stands second only to New York City in her ability to cater to great crowds of visitors, in comfort and without overcrowding.

There's no doubt about it. San Francisco is a great and interesting city. Even a Los Angeles man will tell you he likes to go there—every year or two—to see whether anything in the show windows has been moved, but don't pay any attention to this. You hear the same things in St. Paul and Minneapolis or Omaha and Council Bluffs. San Francisco *is* a great city—for a convention—and you're going to enjoy yourself. You'll get much good food, too.

Since the early days dining has been an art in San Francisco. Her culinary renown has gone around the world. Restaurants Spanish, Chinese, French, Mexican, Italian, Filipino, Guatemalan, Japanese, and Russian, as well as restaurants characteristically western and American, will intrigue your too few evenings.

Division VI Will Hold Its Convention at the Famous Palace Hotel, San Francisco. Ask for Mr. Manwaring if You Lose Your Way, or Anything.

How do you like that, folks? That Chamber of Commerce certainly does know the town. Still and all, as Ring Lardner would say, San Francisco has reason to be a bit high hat. It is said to be the only city in America to gain the praise of H. L. Mencken, editor of The Mercury Magazine, to whom little on this earth is as it should be. Just a moment:

Writing in the New York *World*, Mr. Mencken, the great objector, said: "I confess to a weakness for San Francisco. It is my favorite American town, as it is of almost every one else who has ever visited it. . . . Its people take the time to live, and they are aided in that laudable enterprise by the best climate in the world."

Station A.O.B., San Francisco, signing off.

"So this is *Los Angeles!* Well, where's Hollywood? I want to see Greta Garbo, and what's that parade going up street?"

This *is* Los Angeles, ladies and gentlemen of Division V. Hollywood is a suburb, and that is not a parade. It is a large part of the population of Iowa getting ready to accept the joyous invitation of real estate men to "be our guests on a tour of the studios." (On the outside). You are in a new kind of town. Here the real estate men have only one object in life: to show you the motion picture studios, give you a perfectly scrumptious luncheon, a free lecture that will charm the pocketbook out of your clothes if you have it with you, an operation that is painless at the time, and when you come to, if you do, you will know that when these men arrive wherever they go in the hereafter they'll begin subdividing the place before night.

If you are wise, and of course all Division V delegates are next to themselves, you'll hustle right up to the Alexandria Hotel at Fifth and Spring streets and register. This is convention headquarters. When you emerge at the main entrance—and, naturally, no one stays in the convention—you turn to the left, and two blocks west you'll find Pershing Square, the city's big central park, set aside exclusively for debates of all kinds, from farm relief to why Texas went Republican. The Hotel Biltmore, and many other handsome buildings take up the west side and on the south side of the square are others, among them the Detwiler Building in which this monthly magazine of the transportation industry is made. Here is the center of rapid transit lines of all kinds, theaters of the finest, and what not.

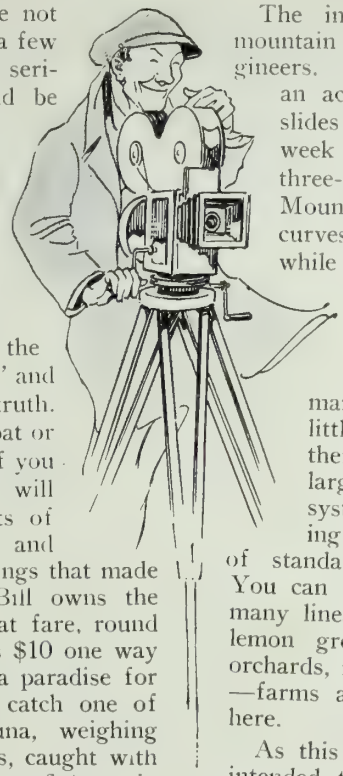
Los Angeles is quite a railroad center, but it leads the nation as headquarters for the aviation industry. You may be a bit confused at first to hear Grand Central Air Terminal re-

ferred to as the "great Los Angeles airport," only to discover that this big enterprise really is in Glendale, which has its own city government. You may look about, inquiringly, for the ocean, only to find that it is 22 miles down street at San Pedro which, also, is a part of Los Angeles. All these things are merely peculiarities of the people, due largely to the fact that this is a fairly large city with about 1,500,000 population. Indeed it is about 30 miles or more across it, one way or the other, and much too scattered for a morning's walk. No one ever has found the city limits, but they are said to be just this side of San Francisco. If you live in a large eastern city with many skyscrapers things may look a bit flat out here, but this is because Los Angeles has a height limit for its buildings, usually about 15 stories. However, these are the only stories that have a limit.

There are hotels everywhere, several of them pretty famous. If you can't get lodgings in one of them it takes only a few minutes to reach Pasadena, the winter home of tired railroad executives; Long Beach, Santa Monica, and other widely known resorts. You can always get a bed and plenty to eat if you have the price. This is because Los Angeles is a great convention town. Long before your meeting begins here the city will have entertained, this month, the largest of all conventions, the Shriners, the champion rain-makers; the Elks, and two or three others will follow this summer.

Remember you are in the world's motion picture capital. If you see a crowd rushing in or out of some building and hear shooting, look around for the cameras before you run. It may be a bank robbery, but the chances are that some studio company is making a sequence for a thriller. It is said that two policemen helped a group of men to take a safe out of an office building one day, not long ago, under the impression that the scene was being "shot" for a movie. Of course they were sore when they learned they had helped in a robbery. "That's just too bad," said the chief.

For those who have not yet visited California, a few interesting and more serious paragraphs should be set down here. In and around Los Angeles are many things to be seen, things you shouldn't miss. Catalina Island, for instance. As soon as you light here you'll see the signs, "In all the world no trip like this," and this is well within the truth. You can go there by boat or amphibian plane, and if you do all the rest of life will be filled with thoughts of glass-bottomed boats and Wrigley's gum, two things that made the island famous. Bill owns the whole works. The boat fare, round trip, is $2.95. It costs $10 one way by plane. Catalina is a paradise for fishermen. You may catch one of the famous leaping tuna, weighing from 80 to 250 pounds, caught with rod and reel, the meanest fighters in the sea for their size; of course, the biggest one may get away.



Don't miss the excursion up Mt. Lowe. The Pacific Electric Ry. offers this trip. It's about 5,000 feet up, and when you get there you can look down on a valley in which there are three counties, containing 26 or more towns and cities, including the most-talked-of place on earth. If you can arrange to go up in the evening you'll be enchanted, especially if you have your overcoat along. A million lights sparkle, as far as the best of eyes can see. It's a wonderful sight.

The incline railway up the mountain will interest the engineers. There has never been an accident on it. A man slides down the cable every week to inspect it. On the three-mile section above Echo Mountain there are 127 curves and 18 bridges. And while we are on the subject it is just as well to remind you that the Pacific Electric Ry., which provides so many of these interesting little journeys here and there, is declared to be the largest interurban electric system in the world, having more than 1,100 miles of standard gauge main line. You can travel for days on its many lines, through orange and lemon groves, vineyards, fruit orchards, ranches of many kinds —farms are called ranches out here.

As this part of the article is intended to be informational it ought to contain these highly essential facts:

The area of Los Angeles is 441 square miles; its population 1,427,480. In Los Angeles county, however, and practically within the city limits, are several large cities which have never been annexed. The largest of these are Glendale and Pasadena. The first with a population of 83,382 is only 8 miles from Pershing Square, while Pasadena is only 11 miles away and has a population of 85,265. The total area of Los Angeles county is 4,115 square miles and the population totals approximately 2,500,000.

Bank clearings in Los Angeles in 1928 amounted to $10,825,705,030, an increase in the last ten years of about 700 per cent. In the same year 25,402,262 tons of freight were cleared through the Los Angeles - Long Beach Harbor.

In 1927, in the Los Angeles metropolitan area, it is estimated that 5,804 factories produced $1,300,000,000 of manufactured products, and that in the same district oil pro-

—C. Spence Airplane Photos.

Down Town Los Angeles, Looking Northeast From Tenth and Hope Streets.

duction ran up to 151,988,152 bbls.

In Los Angeles county there are 91 companies producing motion pictures with 35 studios, and it is estimated that these companies produce about 84 per cent of the world's pictures.

California, as you have discovered by this time, has two great cities, Los Angeles and San Francisco, but there are others worth visiting, fine, energetic, busy places of smaller population, perhaps, but by no means to be overlooked. Even Sacramento, the state capital, is a pretty good town to visit, and it will seem perfectly normal if the legislature doesn't happen to be in session. Los Angeles is thought of by most travelers, perhaps, as the wonder growth of the continent because in 35 years it has sprung from a rather truculent, Mexican town of 100,000 to the great city that greets you today. Beyond doubt much of its fame is due to the motion picture industry which has advertised it everywhere, but it is, quite aside from this, a great seaport served by many of the principal steamship lines from all parts of the world. It is an active business city, its name appearing most frequently in financial reports. The writing chaps of the world seldom mention it in their books and stories, not, perhaps, an important thing, but having much to do, nevertheless, with the thing we call romance.

Pershing Square, in the Heart of the City. The Hotel Biltmore in the Background. Detweiler Building, Lower Left-Hand Corner, the Home of Transportation.

San Francisco, described in the beginning of this chronicle, is by all means one of the most interesting and romantic cities on the American continent. If there are any poor yaps anywhere in the world who haven't heard of Los Angeles, you may safely bet your last locomotive that they know about San Francisco. From every part of the earth writers have embalmed it in deathless tales about gold or Chinatown nights. Moreover it has no height limit. You can see some of its skyscrapers from the northern edge of Los Angeles, provided you are up in the air. Travelers from far distant lands, from foreign ports you have known only in story books, know all about San Francisco, and start out in a perfectly businesslike way as soon as they arrive, by land or sea, to look up the places they have read about in years gone by as they do in London and Paris. Telegraph Hill, Market street, Lotta's Fountain, the Palace Hotel, Chinatown, Barbary Coast, the Presidio, the Golden Gate, Goat Island, Alcatraz, the Ferry Building—all men know these names as they know their own, not forgetting Cappy Ricks and Pete Kyne. Indeed, one might go on for pages telling about the landmarks of San Francisco familiar the world over, even to folk who never have seen them. Its people are hospitable and kindly, and have a beautifully developed spirit of welcome no traveler will forget.

California as a state has a name filled with music. Ignoring the ill-natured jibes at its real estate boosters, it is a land of great opportunity. Many a man now gray wishes he had listened with common sense to the advice of mature minds in his youth, and put his savings into vacant lots when they were purchasable for small money, and now are worth unbelievable amounts. Some of these chaps, if they had been wise, wouldn't be writing things today for you to read. The state has within its borders 158,297 square miles, about 12,500 of it water, and its population is something more than 4,550,000. It has 20 national parks covering 19,164,573 acres, and five state parks of 13,065 acres. It is a state of wonderfully well developed highways, adequate steam and electric railways, and more airports and airplanes and pilots than any state in the Union. If you will just be patient and remember the people, led by the Native Sons, believe in their state and love it, as perhaps you believe in your own, even if you're from some old state filled with the foundations of the nation's history, you'll have a good time out here. Of course, if you begin to knock California, and bark when you hear others boosting, well, it will be just too bad, that's all.

Is This Heaven?

By C. L. Holland

Situated in the Piedmont section of South Carolina there is shown on the map a little town whose peculiar name is Due West, a quiet little village of about 500 souls. Among the other things this town is famous for, is that it is the home terminus of the Due West Railway Company. It boasts of being the seat of one of the oldest colleges in the South and headquarters of this standard gauge railway which is four and a half miles long, extending from Due West to Donalds, where connection is made with the Southern Railway and the Piedmont & Northern, an electric road.

This road was built 21 years ago and has been in continuous operation since. It has no debts, is not burdened with any form of mortgages, has no outstanding bonds against it, and pays all bills on presentation, thereby not overlooking the discount.

Six days a week does this road operate, and on the seventh day it rests. No trains run. Business is at a standstill. This rule has been in effect more than 21 years and it has been rigidly observed with the exception of one Sunday in 1915, when a matter of life or death intervened. A young woman's life hung in the balance. It was imperative that she be rushed to a hospital in Charlotte, N. C. The only way to do this was to take her over the Due West Railway to Donalds to connect with one of the other roads. R. S. Galloway, Sr., president, manager and treasurer, was attending church when the urgent summons came. After being assured that it was a case of dire necessity, he gave permission for a train to be operated on its first and last time on a Sunday.

Some Western Shops and Stores

Airplane View of the Southern Pacific Shops at Sacramento Before the Passenger Station Was Built on the Site at Right Center.

The Southern Pacific Plant at Sacramento

By
Geo. McCormick
Gen. Supt. Motive Power

Some of the largest railroad shops west of Chicago are those of the Southern Pacific at Sacramento, Cal. Like practically everything in the railroad business, they are the modern conception of efficiency, under which well-burdened word we may include economy and scientific reclamation. If there is anyone around who lived when the original shops were built in 1863 today's big plant must be a great delight.

The first shops were built when the Central Pacific, the parent organization of the present Southern Pacific, began work on the first transcontinental railroad. The first permanent buildings were put up on the present site during 1868-1869. In succeeding years the facilities were expanded to include, in addition to the shops for general locomotive and car construction and repairs, foundries for work in cast steel, cast iron, freight car wheels, and brass; rolling mill, spring mill, spring shop, frog and switch manufacture and repair shop. Today, on an area of 210 acres, there are 18 major shops, and foundry and mill buildings giving employment to an average of 3,100 men.

The general machine shop of the present time has 90,000 feet of floor space, and contains 25 stalls for locomotive work. Two electric cranes, one of 120 tons and another 7½ tons, serve the erecting side of the shop, with a 7½-ton and 5-ton crane on the machine side. In this shop is a lathe which will take a shaft 30 feet long or turn a piece 76 inches in diameter. Adjoining this lathe is a double head slotter on which can be finished four locomotive frames at one setting. Next to this is a reversing motor planer which will take a job six feet wide and 24 feet long. Cylinders for locomotives, and many other large jobs, are handled on two large Morton draw cut shapers which plane all sides, bore out the valve chambers and, after the cylinders are bolted together, plane a radius on the top to fit the smoke arch, using a machine feed designed at Sacramento. In addition to these special machines, the shop has 168 lathes, planers, shapers, vertical and horizontal boring mills, milling machines and drill presses of various sizes.

During the last three years twenty-seven 4-8-2 Mountain type locomotives have been constructed in the Sacramento shops. Ten 614,200 pound locomotives, which produce 67,600 pounds of tractive power and which are to be used extensively on long passenger runs, are now programmed for construction. This type of locomotive erecting, with the building in the last three years of 2140 freight cars and 25 locomotive tenders, indicates the class of work carried on at Sacramento.

The schedule system is used in moving work through the various departments of the locomotive and passenger car shops. This system permits the supervising officers to line up work on various parts of locomotives and cars so a desired program can be followed, and a glance at the schedule board will show progress of work from day to day. This system brought out the fact that some delays that formerly occurred were due to forces in the shops not being balanced. Help in the various

The First Locomotive Built at the Sacramento Shops, in 1872. Much Brass Trimming, Gold Leaf and Bright Colors.

shops is now equalized so that steady progress is made in construction and repair work.

The first locomotive was built at these shops late in 1872. It was 52 feet long, and had 54-inch drivers, 17 by 24 inch cylinders, tractive power of 14,480 pounds and weighed 66,000 pounds in working order. Since that time 179 Sacramento-built locomotives have been placed in service on Southern Pacific lines. During the World War, when many American railroads were forced to build their own power, these shops faced a supreme test of their ability and capacity in locomotive construction. In August, 1917, the first of the "war time" locomotives, a 2-8-0 type Consolidation, was turned out. This was followed by thirteen of the same type. Then came two 4-6-2 Pacifics, 11 tenwheelers of 4-6-0 type, and 34 switch engines. In all 100 locomotives have been built at Sacramento since 1917. In addition to locomotives to be built, mentioned a moment ago, the shops are to build, this year, 300 flats, 300 logging cars and 65 gondolas. The Southern Pacific is arranging at Sacramento to simplify all its Mallet compound locomotives. In the present year it is expected fourteen locomotives of this type will be converted from compound to simple.

The shops are, as they should be, a busy place. Equipment rebuilt and repaired there in 1928 included 588 locomotives, 745 passenger cars and 9262 freight cars, and these figures do not include running repairs. There was manufactured by the various shop industries during the same period: 175 track and crossing frogs, 58,092 car wheels, 13,195,462 pounds of grey iron castings, 4,427,646 pounds of steel castings, 11,154,632 pounds of steel ingots, 7,287,121 pounds of brass castings, 397,501 pounds of car and locomotive springs manufactured and 2,947,137 pounds rebuilt, 1,013,240 pounds of finished bar iron manufactured, 14,497,895 pounds finished bar steel, and 8,024,202 pounds of billets, slabs, track and other bolts, angle and tie plates.

There are four main groups in the Sacramento shop organization: the locomotive department, with a force of 1430; freight and passenger cars, 715 men; manufacturing group, including the foundries, mills and such industries, 907; and the administration office force of 91, an average for 1928, when the average monthly payroll was $304,156. The district stores have an average enrollment of 488 employes, including those in reclamation work, and a monthly payroll of $52,241.

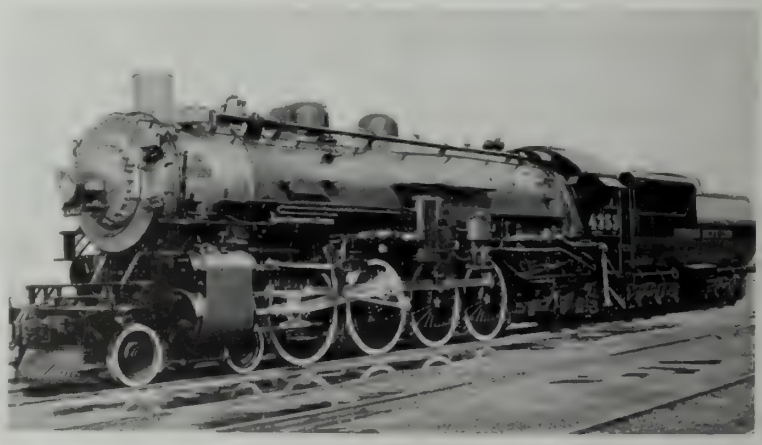
Just as the boiler is the heart of a locomotive, so is the boiler shop one of the most important units in this kind of plant. All types of locomotive and marine boilers are built and repaired there. Locomotive tenders, structural work, bridge work, and a variety of work in which plate metal is used; I beams, channels and other shapes are fitted up there and rolls, punches, shears and drills handling plates up to 1¼ inches in thickness are produced.

The rolling mill has two 12-inch, and two 18-inch mills served by eight large reverberatory furnaces. Practically all the bar iron and steel used by the railroad from ½-inch round or square to three inches round, or 1½ inch by 6 inch in flat section is rolled there. These mills roll 235 sizes and shapes of merchant bars, and have an output of about 2,000,000 tons a month.

The forge shop is equipped with 5000-pound, 3000-pound and 2000-pound steam hammers, four lighter steam hammers, two belt hammers, five air bending machines, four forging machines, one heavy bulldozer, 23 blacksmith forges and 3 furnaces, and one 300-ton hydraulic press. In the sheet metal shop all steel below ⅛ inch in thickness is handled. More than 300,000 pounds of galvanized iron are used yearly in the products of this shop. A large part of the metal goes into tinware, such as cups, oilers, cans, buckets, etc. In making up this work, riveting has to a large extent been done away with. The sheets are fastened together with an electric spot welder which welds the two pieces wherever they are touched. This welder does work in one hour that formerly required five hours.

Boosters, feed water heaters, automatic train control and power reverse appliances have greatly increased the number of pipes used on locomotives in recent years. Because of this the pipe shop at Sacramento has been growing in importance. It now employs 76 men. More than 24,000 feet of copper, steel and iron pipe was used there last year.

The passenger car shops have nine tracks, four of which have overhead automatic hoists. Here, as in all such shops, goes on the familiar processes of cleaning, repairing, or making new things for cars. The upholstery shop alone makes more than 78,000 articles every year, among them such



This Is a Specimen of Present-Day Construction at Sacramento, the Mountain Type 4353.

items as canvas hose for filling locomotive tenders, engine seat cushions, mattresses and furniture.

The car machine shop, ordinarily, is called the wheel shop for here it is that all the cast iron and rolled steel wheels are fitted up. This shop handles about 100 pairs of cast wheels a day in addition to the rolled steel wheels, and a large amount of machine work pertaining strictly to cars. All car wheels go there for a reconditioning and there they are taken from the axles if either wheel or axle warrants it. Not only ago a pair of iron wheels cast in 1868 were received there for dismounting.

Track room for 23 cars is provided in the car paint shop which is now using lacquers for painting steel equipment. In addition to this shop there is a small locomotive paint shop. The paint spray gun is used extensively on locomotives and cars. Furniture glass, mirrors and signs for all purposes are also made in the paint shop. More than 500 mirrors of various kinds are made there as well as art glass.

The electro-plating shop is a thoroughly equipped and highly efficient department. More than 700 locomotive headlight reflectors were resilvered there in 1928. About 26,000 pieces of silverware are replated yearly.

Increase of steel car equipment in recent years has made it necessary to increase facilities greatly in the freight car repair shop, where from 150 to 160 cars are regularly handled on the ten tracks. An average of 1200 freight cars are repaired at Sacramento monthly under the spot system of repairs, a method similar to that used in many automobile plants. Instead of repairmen moving materials from one car to another, the cars are moved through the shops and spotted where the men are engaged in steel work, decking, siding or roofing.

Construction Under Way on a Mountain Type Engine in the Southern Pacific's Shops.

The iron foundry became a part of the shops in 1868, and since that time all the general iron castings used for cars, locomotives and steamers have been made there. The present foundry is divided into two sections, one specializing in wheels for freight cars and the other handling miscellaneous work. Under full operation 300 standard wheels are made every day, requiring about 125 tons of molten iron. This foundry makes the general castings, of which nearly a half million patterns are used. Everything is cast here from brake shoes to the intricate locomotive cylinders and heavy castings. During the rush season this foundry uses about 55 tons of metal daily. Brass as well as iron is very extensively used. The earliest brass foundry work was carried on in a corner of the iron foundry, but a few years ago a building with 20,000 feet of floor space was erected to take care of this work. All such castings used by the railroad in its locomotive, car and steamer work, are made there. At present the foundry is working three shifts with a daily output of as high as 15 tons.

The steel foundry is equipped with a 6-ton Herolt electric furnace, the largest installation west of Chicago of this method of manufacturing steel. At present this one furnace is making about 750 tons of steel a month, pouring seven to eight tons at a time. Thirty tons a month go into steel castings, while the remainder is made into ingots for use in the rolling mill.

There is a separate shop for mak-

This Shop Turns Out About 100 Pairs of Cast Wheels Daily in Addition to Rolled Steel and Other Work.

The Old Way of Piling Stores Material.

ing and repairing frogs, crossings and other track materials. The centralizing of this track work, from the repairing of picks to the building of crossings, has relieved the machine shop and blacksmith shop which originally handled the work.

Other departmental shops are the spring shop, employing 46 men and having a capacity of 1500 tons of springs manufactured and repaired yearly; the cabinet shop and the saw mill. Eight million feet of lumber was handled in 1928 through the saw mill for freight cars, interior work on passenger cars, and for desks and such articles.

Electric energy was first used at Sacramento in 1889, when one 35-light arc dynamo and one 500-light incandescent alternating dynamo were installed. These machines were run by a high speed steam engine and supplied light for seven years. At present the various shops use electric energy totaling 6059 horsepower. There are 608 motors ranging from ¼ horsepower to 751 horsepower. Twelve electric welders are kept busy the full 24 hours.

Associated with the activities of these shops are the Sacramento district stores, the average monthly disbursements of which approximate $2,000,000. More than one-third the value of these supplies is supplied to the Sacramento shops and industries. At no time does the total stock on hand in the district stores exceed $2,600,000, a condition showing a well-regulated turnover of materials.

Indeed, the efficient and economical functioning of the shops is largely due, of course, to the close cooperation received from the stores. The many related activities of the mechanical and store departments, particularly in reclamation work and material delivery, are carried on in a highly coordinated manner. In store delivery practices a very high degree of efficiency has been achieved, the Southern Pacific having been one of the very first roads in the country to adopt that modern method of handling stores materials. And this method, as most modern stores and shop men know, is the one way to save labor and expense and gain speed in handling.

A variety of tests of the physical, chemical and mechanical qualities of materials used at the shops and stores are conducted in a laboratory equipped with apparatus that insures the fitness of raw materials supplied to the shop industries. This laboratory is equipped with a metalo-micrograph

The New Way, on Truclift and Platform. Labor Saving.

camera with a capacity of 10,000 diameters.

The shops are piped throughout with acetylene and oxygen for cutting and welding. The acetylene is made by the Southern Pacific, and the oxygen is supplied under contract by a company that does its manufacturing on the shop grounds.

At present there are 280 special and regular apprentices in the school which has been conducted for many years. Several of the supervising mechanical men at Sacramento are graduates of this school, and 93 per cent of its graduates remain at work in the shops.

The necessity of eternal vigilance in safety is kept before the shopmen through activities of a well organized safety committee. There is an extensive fire alarm system protecting the shops, with sixteen general alarm boxes and 23 still-alarms of the Gamewell type. A fire chief devotes his entire time to fire matters. Seven hose cart companies and one chemical company are ready to respond immediately to an alarm from any section of the grounds.

The entire store layout at Sacramento covers an area 2,800 feet in length with a width of 250 feet, with loading and unloading track and convenient cross-overs extending through the center the entire length. There are concrete roadways on either side. The stores are in the center of the shop grounds with the storage of materials so arranged that all classes are convenient to the shop where they are likely to be needed. In the store delivery system the most modern types of equipment are used at low handling costs. This equipment includes seven automobile trucks, three gasoline tractors, 75 auto truck trailers, two electric tractors, 50 electric tractor trailers, four 3-ton gasoline power lift trucks, 500 steel platforms for

Where Oily Waste Is Reclaimed, Handled in Various Ways, Combed and Finally Brought Out Like New.

power lift trucks, two hand power jack lift trucks, and one 1500 pound gasoline tractor crane.

Salvage and reclamation work is carried on jointlv by the shop and store forces. Many practices originally instituted by the store department in reclaiming and reconditioning discarded or damaged materials, have now become general shop practices. Approximately 60,000 tons of scrap, picked up over the divisions and at the shops, were handled last year through the scrap and reclamation docks. Material conserved and reclaimed at Sacramento last year was valued at $246,550. This amount was saved over the purchase price of the same material new, and does not include rail, journal bearings, triple valves, remounted air brake hose, axles, or injectors and parts.

The Southern Pacific has more than 2000 reclamation practices in operation and a majority of these are carried on at the Sacramento shops and stores. More than 30,000 pounds of journal box packing is reclaimed every month at a saving of $1500. An effort is made to prevent total waste of any used materials. In the process of reclaiming journal packing the waste unfit for reclaiming is burned and the ashes are sold at $5 a ton. Sweepings from the brass foundry floor are saved and sold at a profit. Track spikes that come to the scrap docks are carefully sorted. Cut or worn spikes are discarded and sold as scrap, and the others heated and straightened under power hammer and anvil. They are then cleaned in a rattler and when sharpened on an emery grinder are again ready for service. An average of 125,000 pounds of spikes are reclaimed monthly at Sacramento with a saving of $1365. Another important reclamation practice is in the repairing of worn and damaged frogs and switch parts. Also crossing frogs of special angles are manufactured. In March 72 frogs were repaired at a saving of $1723 and 83 switch points were rewelded and returned to service at a saving of $1041.

Other outstanding monthly savings in reclamation work include: 550 brake beams rebuilt with new parts at a saving of $1369; shanks and lock parts of couplers and coupler parts rewelded at saving of $1312; an average of 500 track shovels returned to service at saving of $347; total of 38,340 pounds of bent and twisted bar iron and steel straightened cold at saving of $725.

The Sacramento Shops are under the direction of A. D. Williams, superintendent of motive power, and H. C. Venter, superintendent. The activities of this shop, as well as the Southern Pacific general shops at Los Angeles and El Paso, are carried on under the supervision of George McCormick, general superintendent of motive power. The Sacramento district stores are in charge of E. H. Polk, district storekeeper, working under supervision of general storekeeper, A. S. McKelligon.

The Santa Fe's Big Shops at Albuquerque

By D. E. Barton

Shop Superintendent

The Santa Fe shops at Albuquerque, one of the largest plants of the kind on the system, cover 75 acres of the old site of the original Atlantic & Pacific Railway shops built in 1881. The improvement program, including the purchase of additional land, and construction of the car department, began in 1915, and was completed with the locomotive repair plant in 1923.

The main building contains about 4,000 tons of steel in fabricated columns and trusses. The walls are reinforced concrete inset throughout with wire inserted glass for complete lighting of the shop. The building is 235 ft. by 602 ft., with a balcony 40 ft. by 541 ft., or approximately a total floor area of a quarter of a million square feet, including the north and south concrete material platforms used for storage of material for engines undergoing repairs and served by electric cranes. The shop floors are surfaced with Kreolite blocks. This building is fully equipped with modern machinery, including cranes ranging from 1½ ton post cranes to a 250 ton traveling crane used for lifting complete locomotives, and placing them on available pits in any part of the erecting shop. The building is also equipped with suitable steam, water, air, gas and electric welding connections, serving 26 erecting pits as well as heavy and light machine bays.

Superintendent Barton, Albuquerque.

The boiler shop is of the same construction as the machine shop, and is 140 by 414 feet, including a firing-up shed 84 by 61 feet, and is also suitably equipped with all necessary modern machinery and cranes serving 19 repair tracks. An up-to-date blacksmith shop of brick is situated east of the boiler shop. This shop is equipped with two 4,000 lb. steam hammers and four of smaller capacity, with suitable furnaces, forges and other necessary machinery.

The tank shop, 94 by 200 ft., containing four tracks served by a 30-ton crane, is situated north of the west section of the boiler shop, and is of reinforced concrete and steel construction. A pumping plant supplies approximately two and one-half million gallons of water a day from 12 deep wells on the shop grounds. The drinking water is treated in violet ray sterilizers and filtered, cooled and circulated throughout the entire plant.

The power plant, of reinforced

The Firing-Up Shed, Boiler Shop and Transfer Table at the Albuquerque Shops.

concrete and steel, houses five Sterling boilers of 453 h.p. each with Coxe Stokers and rotating grates connected to a 235-ft. stack 19 ft. in diameter at the bottom and 12 ft. at the top. These boilers require 2,000 tons of anthracite culm monthly. This is procured from one of the few anthracite mines in the West situated a few miles from Albuquerque. In the engineroom are two Skinner universal engines directly connected to two 500 KWDC generators which supply shop power, and two generators providing alternating current and synchronous motor generator sets for converting alternating current to direct current or vice versa. The distant load is carried on direct current and includes the yard, station buildings and Alvarado hotel. The electrical current produced is approximately 325,000 KW hours a month. The power plant also houses two air compressors capable of supplying 5,000 cubic feet of air a minute.

A pattern storage house, a modern fire department hose house with sleeping quarters for eight firemen, a paint storage room, waste renovating plant for reclaiming oily waste and oil, a locomotive carpenter shop, flue welding plant, a welding shop and babbitt shop complete the list of separate departments of the locomotive back shop, all modern. These facilities are within 100 ft. of a 35-stall enginehouse capable of turning 2000 locomotives a month. There is also a store department carrying approximately three-quarters of a million dollars worth of stock, all arranged in sections for efficient handling.

The entire shop is heated by passing air over radiators filled with exhaust steam. This heated air is forced through ducts to all parts of the shop, and the same ducts are used in the summer to distribute cool air drawn from the outside and passed over water cooled pipes. The condensate is returned to the power plant boilers.

The car department consists of a planing mill, wheel shop, steel car repair shed, wood car repair shed, carpenter shop and tin shop, all equipped with thoroughly modern machinery of all classes, including cranes. This planing mill operated by two 150-h.p. boilers and a 150-h.p. Corliss engine, use mill refuse as fuel. Two 50-inch electrically driven exhaust fans deliver shavings from machines to boiler room.

There are 12 repair tracks with space for approximately 200 cars. Three of these are used for heavy repairs on the progressive system, cars being moved on the average once daily by means of a motor-driven crab or winch. Two tracks, adjacent to the train yard, are used for one-day light-repairs only.

Latest in European Locomotives

The Austrian Federal Railroads are putting into operation a new type of steam engine built by Sigl Locomotive Works of Vienna. With a capacity of 3,000 horsepower, a speed of over 60 miles and a haulage of 600 tons this is the most powerful type in service at present on the European continent.

Economizing for the purpose of being independent is one of the soundest indications of many characters.—Smiles.

Store No. 1 at Sacramento is Two-Story, 500 Feet Long and 60 Feet Wide. This Is a View on the Second Floor.

The Elements of Train Operation

Power the Principal Item

By H. J. Titus

Transportation Engineer, Franklin Railway Supply Co.

Any analysis of transportation relative to the effectiveness of train handling points to power as the important item. Thus power in freight, passenger and switching service should receive the first consideration.

From a study of the last available record of the Interstate Commerce Commission relative to the cost of operation for freight service on the Class I roads in the United States, it is found that of the total operating expenditures 17.8 per cent was for maintenance of way and structures, 27.7 per cent for maintenance of equipment, 50.5 per cent for conducting transportation and 4 per cent for the general expense.

Of these expenditures train handling will have a direct effect on maintenance of equipment and the cost of conducting transportation, and an influencing effect on maintenance of way and structures.

A further study of operating expenditures shows that of the total expenditure for conducting transportation 60 per cent was expended for the direct expenses of road and yard service, which includes enginehouse expense, fuel, wages of enginemen and trainmen, locomotive supplies and train supplies. For road service alone the direct expenses amount to 45 per cent of the total expenditures for conducting transportation. When the maintenance of equipment expense, enginehouse expense, fuel, wages, locomotive and train supplies are analyzed, it is found that with the exception of fuel and wages all of these items of direct expenditure are constant for the train unit, fuel being dependent upon the train tonnage and train hours, and wages are dependent on the train hours and train miles. Under normal conditions wages may be considered as being constant for the train unit, it being an exceptional case wherein the time of movement will be influenced to a great extent if the delays en route are the same and the train load has not been increased to such an extent that the train length is greater than the existing passing siding facilities will accommodate. There are known cases where increased train load has greatly affected the time of operation, but these cases cannot be considered as general. Thus the expense of moving train units between two terminals will be independent of the tonnage, except for the item of fuel which amounts to approximately 30 per cent of the train cost.

The Light Machine Bay of the Santa Fe Shops at Albuquerque.

A railway may be considered as a manufacturing plant, in which the commodity manufactured and sold is the gross ton miles. Therefore, inasmuch as the selling price is based on the gross ton miles, so also should be the cost of manufacture, or the operating expense. Previously it was brought out that within certain limitations the majority of the expenses were confined to the train unit and, therefore, the total train cost will be approximately the same regardless of the tonnage handled.

Therefore, inasmuch as the greater percentage of the train expenses are constant for the train unit, it is essential that the maximum tonnage possible, consistent with good operation, should be handled in each train unit, in order that the cost of production per 1000 gross ton miles will be a minimum.

In order to obtain the least cost of operation possible, it becomes necessary to study the various elements of operation which affect the direct transportation and maintenance expense as a whole, or the principal elements thereof.

There are many elements which will affect these expenditures, such as

Erecting Shop, North, Transfer Table, Looking West, and Boiler Shop, at Albuquerque, Santa Fe Shops.

power of the locomotive, size of tender tank, length of division, length of ruling grade, location of curvature, location and extent of facilities, such as water tanks and sidings, class of business handled, direction and flow of tonnage with regard to ruling grade, and the flow of business through terminals, which must be taken into consideration. In addition, it is important to determine to what extent it becomes necessary to stop through trains for the purpose of pick-up tonnage at intermediate points. All of the foregoing factors must be determined in order that the most economical operation may be obtained.

Upon investigating all angles of the operation which will affect the economics of railroading, it is found that the analysis points to power as the important item. Thus, as previously stated, power should receive the first consideration in any economic study relative to train handling.

In studying the effects of power in relation to train handling and to the economic operation of railways, it must be borne in mind that this one item can affect one or all of the following direct expenses relative to operation:

Locomotive maintenance.
Wages of engine and train crew.
Fuel.
Enginehouse expense.
Locomotive supplies.
Train supplies.

From a glance at these items of direct expense for transportation it is obvious that the only way in which the total expenditures or the unit cost per thousand gross ton miles may be reduced is by an increase in power, making it possible to increase the gross ton miles per train unit. This was early recognized, and led to the design and building of heavier and more powerful locomotives. Lately, since the World War, renewed efforts in this direction have resulted in increasing train load with a consequent reduction in the unit cost per thousand gross ton miles.

The increased power which has been obtained was acquired in one of four ways:

A new design of locomotive, with the same number of driver wheels, but with a greater weight per driver, was built and installed.

A new design of locomotive was utilized wherein the number of drivers were increased, so that the total power output of the locomotive was thereby increased.

The application of the locomotive booster to existing locomotives on many roads has been responsible for the desired increased power.

Resort was made to the application of devices for increasing boiler capacity.

The question naturally arises in one's mind as to just what the exact saving from increased power of the locomotive would be. I have therefore obtained data from two roads, both of which originally had Mikado type power of approximately the same weight on drivers. In one case, after a thorough analysis of the situation, one road decided to utilize the existing locomotive and apply a locomotive booster to obtain the expected economies. In the other instance the road decided to purchase new power of the 2-10-2 type, which had a load per axle equivalent to that of the Mikado type.

In the first instance the road determined that the existing operation was costing approximately $.734 per thousand gross ton miles for the direct expense of transportation, which included locomotive repairs. From an analysis of their condition it was found that a 2-10-2 type locomotive would decrease the operating cost by approximately 12.5 per cent whereas the existing locomotive with the booster would decrease the operating cost by approximately 16.8 per cent. This road decided to apply locomotive boosters, and as an experiment equipped ten locomotives with this device, assigning these locomotives to a subdivision where 12 existing Mikado type locomotives were then in operation. The operation with these locomotives was closely watched, but no data were obtained until these engines had been in operation for a considerable period.

After operating for a time the data during a test period, compared with the operation during a similar period where there were no boosters, showed that the train mile cost had increased from $1.409 to $1.456 per train mile.

The operation during the period with the increased power required 30,555 train miles to handle 73,432 thousand gross ton miles, while the previous operation had required 39,270 train miles to handle 75,428 thousand gross ton miles.

Thus while the cost per train mile was increased by 3.3 per cent the unit cost per thousand gross ton miles was reduced from $.734 to $.605, a saving of $.129 per thousand gross ton miles. This saving is equivalent to a reduction of 17.6 per cent in the unit cost of operation, after the deduction of all the maintenance charges against the booster, with the necessary investment cost involved in applying boosters.

In the second instance of replacing Mikado type locomotives with the 2-10-2 type, it was found that the train loading could be increased by approximately 18.4 per cent by using the heavier engine. This increase in the tonnage per train unit was reflected in a decrease in the average train miles for the operation from 63,550 to 51,973 train miles for the period under consideration. This substantial decrease in the number of train miles required for the operation naturally reflected itself in the cost of operation, it being found that with a 2-10-2 type of locomotive it was possible to reduce the direct expenses of transportation by 9.3 per cent.

There is one expense not included in the direct expenses, which has a great bearing on the subject of train handling and the possible economy. This expense is the investment expense involved in the capital expenditures for the necessary power. These investment expenses include interest on the investment, depreciation, and tax and insurance charge, and may be conservatively placed at 10 per cent on the capital involved. These expenses usually are considered as paper charges, but where design, type and usefulness of locomotives are considered, they must receive serious consideration.

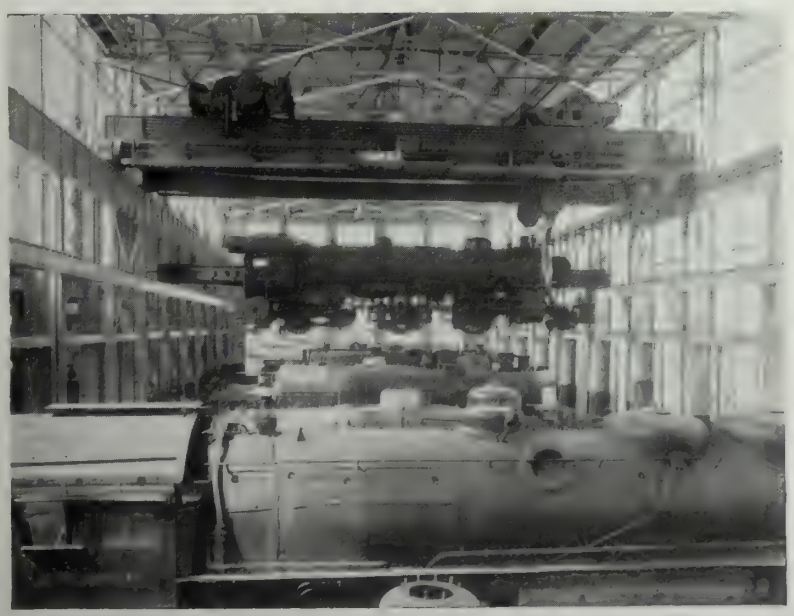
Transfer Table Between the Machine Shop and the Boiler Shop at Santa Fe Shops at San Bernardino.

In this case where the road replaced the existing Mikado type locomotives with the 2-10-2 type, it was naturally found that the total investment cost increased because of the increased capital investment in the heavier power. A further investigation showed that the 2-10-2 type locomotive, however, did not make the same mileage yearly as was possible with the lighter engine. The heavier power required greater time in turning and in the shop, resulting in a substantial decrease in the yearly mileage which was possible as compared with the Mikado type. The investment cost should therefore be considered on the mileage basis, in order to give a true comparison as to the performance of the two types of locomotives.

In this particular instance, when these investment expenses were compared on the locomotive mile basis, it was found that these costs increased 38.9 per cent because of the use of the 2-10-2 type locomotive in preference to the Mikado type. This increase in the investment expense, of course, offsets the reduction as obtained from decreased direct expense of 9.3 per cent, it being found that the total reduction in expenses because of utilizing heavier power resulted in a reduction equivalent to 4.8 per cent of the direct expenses.

The road in question has also equipped some of the existing Mikado type locomotives with boosters. It has been found from numerous tests over the various territories that the same tonnage can be handled with this class of locomotive and booster as can be handled with the 2-10-2 type, which had previously replaced the Mikado type on one of the divisions.

The result from the operation of these booster-equipped engines over the same territory, on which the



A 250-Ton Crane in the Erecting Bay, Lifting a Heavy Type Passenger Locomotive, in the San Bernardino Shops.

The Stores Department at the Union Pacific Shops, Los Angeles.

2-10-2 type are operated show that the use of boosters on the Mikado type locomotive will result in a decrease of 17.8 per cent in the direct expenses as compared with a decrease of 9.3 per cent with the 2-10-2 type locomotive. Further, it is found that if the investment expenses involved in applying boosters to these locomotives are considered on the locomotive mile basis, these expenses will show a reduction of 4.9 per cent when the operation is conducted with booster-equipped Mikados in place of the Mikados without boosters, which were formerly employed. In other words, the increased tonnage which can be handled with the booster-equipped Mikado requires fewer locomotive miles for the operation, and thus results in a decrease in the investment expense per locomotive mile. With all expenses, both direct transportation and investment, placed on the thousand gross ton mile basis, it is found that the total saving derived from the use of boosters on this territory amounts to 19.4 per cent.

These two examples are typical cases, bringing out very clearly the possibility of reducing operating and investment expenses through the increase in the power and capacity of the locomotive. From a comparison of the savings of 4.8 per cent and 18.4 per cent, resulting from the use of a 2-10-2 type and booster Mikado type, respectively, it is clear as to which means of obtaining increased power will give the better financial results.

The locomotive booster is in use in many cases where power increases will prove advantageous in making it possible to reduce the cost of transportation per thousand gross ton miles. There is one instance wherein obtaining increased power through the medium of the booster might not prove advantageous.

The determining factor as regards the use of boosters is the length of the ruling grade over which the booster must be worked. There are numerous roads on which the controlling grade is of great length, and if a booster were used would require the continuous operation for protracted periods. An operation of this character necessarily would result in high booster maintenance expense, which might offset the gain resulting from increased train load. Obviously, under such conditions it would be advisable to consider power increase of locomotive through the medium of increased weight on drivers, or additional drivers, rather than through the use of the booster.

With the maximum grade of great length it becomes necessary to operate over this grade at a higher speed than would obtain for short ruling grades, in order to procure the maximum efficiency. With the use of the booster it is possible to operate up to certain definite speeds dependent on the locomotive, and obtain a combined increase in power for the locomotive and booster. Upon reaching the maximum evaporative capacity of the boiler when the booster is engaged, it becomes necessary to shorten the cut-off of the main locomotive so as to protect the boiler. In shortening the cut-off on the main locomotive the power output of the main locomotive cylinders is, of course, reduced. The reduction in cut-off can be carried to such an extreme that the power delivered by the main locomotive cylinders and increased by the booster will not be equal to the power which could be obtained with a locomotive operating alone with the correct cut-off for the operating speed. Thus the advantage of the booster in some cases will be dependent on the desired speed of operation over the controlling grade.

To obtain the advantages of increased power of locomotives which result in a decrease in all the items of direct expense, when considered on the thousand gross ton mile basis, it will be found that in some cases the greater reduction can be obtained by applying boosters, while in other cases there would be no advantage gained in applying boosters to existing power. If additional power were desired it would then become necessary to consider a type of locomotive having a greater number of drivers, or a greater weight on drivers.

In some instances the train load has been more or less restricted because of the speed of operation which was desirable. With the older type of power in use today the speed of operation is more or less restricted because of the boiler capacity. In many cases the boiler capacity of existing locomotives has been increased by applying heat conserving devices which have in turn made it possible to increase the tonnage which could be handled by these locomotives. In these cases, however, the maximum tonnage which was handled with the locomotive was not restricted because of starting power but because of the power delivered at the higher speeds, where the locomotive is dependent on the boiler for the power output of the cylinder.

Now let us consider the effect of train handling on the individual items of direct expense. It is found from the various records which have been kept relative to the items of direct expense that the items of locomotive maintenance, wages and fuel are approximately equal to 90 per cent of the total direct expenditures, with each of the items equivalent to approximately 30 per cent of the total cost. The remaining items of enginehouse expense, locomotive and train supplies constitute approximately 10 per cent of the total cost. Of this 10 per cent the item of enginehouse expense will bear a ratio of approximately 5 per cent of the total cost, leaving only 5 per cent of the total expenditure to be divided be-

tween locomotive and train supplies.

While there is opportunity for economy in the items of locomotive and train supplies and enginehouse expense, the greater economy will be obtained from the three items which bear the greater proportion to the total expense.

Considering first the item of wages; in what manner can this item be reduced? Wages of engine and train crews are based either on a mileage basis, in which event 100 miles is considered as an eight hour day, and is prorated on this basis for divisions on which the mileage is in excess of 100 miles before overtime begins.

It would therefore appear that if no overtime existed there would be no possibility of decreasing the item of wages per 1000 gross ton miles, except with an introduction of more powerful locomotives. On a great number of roads, however, the operation is such that excessive overtime is produced with practically all trains which are operated. In the majority of cases where overtime exists it will be found that the overtime is due entirely to the delays encountered.

In some cases it has been thought that a reduction in train loading would be conducive to better operation, and would decrease the number of delays encountered, which resulted in the excessive overtime. However, in several instances this has been carefully checked, it being found that a reduction of from 200 to 300 tons in the train load will only affect the running time over a division of 100 miles in length to the extent of from 15 to 25 minutes. In these cases it was found that the overtime was due entirely to excessive delays, some of which could have been obviated. There are, however, instances where the physical characteristics of the road are such that an increase in tonnage will materially affect the operating time. This, however, is not the rule.

In several instances it has been possible to reduce the amount of overtime, and, consequently, the wages, by considering the installation of automatic block signals, lap sidings and remote control switches. It is through the use of these time saving devices, with a close check of the delays encountered over a division that it will be possible to reduce the item of wages, by reducing overtime which is involved to a minimum.

The item of fuel has always been one of great importance and interest. Of all the items of expense undoubtedly it has received the most consid-

Main Entrance, Locomotive Repair Shops, Union Pacific Ry.

eration because of the vast possibilities of conservation, with a corresponding reduction in the direct operating expense. There are several outstanding devices which show marked reductions in the necessary fuel, among which are the superheater, feed water heater, limited cut-off and locomotive valve pilot.

Today the superheater with its great possibilities of fuel saving is an established device, and needs no further test to demonstrate its value. Every existing locomotive should have a superheater, and eventually probably will, as this is one device which is built into all new locomotives.

The feed water heater is one of the devices which has received very much consideration during the past few years. The heating of feed water long has been recognized as economical, but with a locomotive it was a question of designing a device suitable for the conditions imposed. Today, we find the same type of heaters as are used in stationary practice, namely, the open and the closed type. The saving of fuel with each of these types is practically identical, being approximately 14 per cent.

The limited cut-off principle is one of the latest devices which shows marked reductions of fuel and water. The principle, as far as steam engines are concerned, is not new, being incorporated in practically all stationary steam engines. As far as locomotive construction is concerned it is relatively new, not because of the principles involved, as these are well understood. It is new, however, because of the arrangement of producing starting steam on the piston when the main valves are closing off the main steam ports. This is a feature in a steam locomotive, which must receive consideration, inasmuch as it is necessary to start the locomotive from any position of the crank, whereas in a stationary engine the crank may be placed in a favorable position.

The principle of limited cut-off makes use of the expansion of steam, it having been found from tests that the limited cut-off will show a saving in fuel up to at least 30 per cent, depending on operating conditions. On several roads the operating records for extensive periods show a reduction in fuel with limited cut-off locomotives, to have been equal to 30 per cent.

There is one phase of the limited cut-off principle of which little has been said, that being the difference in operation between a limited cut-off locomotive and a full gear cut-off locomotive. With a long cut-off loco-

motive it has been found from tests that at various speeds there will be a wide difference between the water rate of this locomotive when operating with a maximum cut-off and when operating with the most economical cut-off. This difference in the water rate of the locomotive may be as great as 46 per cent. With this wide variation in the water rate it therefore becomes a matter of judgment on the part of the engineman as to the cut-off which will produce the maximum economy of fuel in conjunction with the greatest power output of the locomotive. Experience has shown that no two men will operate a locomotive exactly the same when encountering the same conditions, and, therefore, it is not expected that the same fuel economy will be obtained by different individuals. Therefore, under no circumstances can the maximum fuel economy be obtained with a long cut-off locomotive.

With a limited cut-off locomotive it has been found over a range of speed and cut-off, that there is only a slight difference in the water rate of the locomotive, between the maximum and the minimum water rate, which could possibly be obtained. In fact, this difference in a limited cut-off locomotive amounts to only 2.6 per cent as against the 46 per cent previously mentioned for the long cut-off locomotive.

With locomotives having a long cut-off it is found that the question of handling a locomotive is of vital importance, and in the past few years has received marked attention. With a limited cut-off locomotive, however, the question of handling of the locomotive becomes almost a negligible factor, inasmuch as at a definite speed the steam requirements for the locomotive will be practically the same for all cut-offs. Thus in using a limited cut-off locomotive it is possible for the man under the average ability to show approximately the same fuel saving and fuel economy with a locomotive as it is for the best man in the service. This one fact undoubtedly makes it possible for roads operating limited cut-off locomotives to show maximum fuel economy.

There is one other device which has lately been introduced into the locomotive field, that being the locomotive valve pilot. The purpose of this device is to enable the engineer definitely to adjust the cut-off of the locomotive, so as to obtain the maximum steam and fuel economy for the speed at which it is operated. In addition, with this device it is possible to so adjust the cut-off as to obtain the maximum power at all speeds.

It is devices such as these, with the efficient supervision which has made it possible to show marked economy in the item of fuel.

Considering the item of maintenance of the locomotive, it is found that the customary term by which this item is measured is the cost per locomotive mile operated for both the backshop and running repairs. Considering the details of locomotive maintenance one finds many means by which it might be possible to obtain economy, among which are the introduction of modern machine tools, the method of production in the shop, improved design of locomotive, long locomotive runs. Because of the fact that locomotive maintenance constitutes approximately 30 per cent of the direct expenditures previously outlined, it is essential that these costs be reduced to a minimum.

The gross ton mile basis of measuring the work performed is the basis by which all costs should be measured. Thus we find with modern locomotives which have numerous auxiliary equipment included, that when the costs are placed on this basis there is a substantial reduction in favor of modern locomotives, although on the locomotive mile basis there has been an increase because of the additional equipment to maintain.

In selecting locomotives to do certain classes of work it is very important that the class of locomotive which is the cheapest to maintain and will give the desired power be considered. It has been found that the maintenance of locomotive, including backshop and running repairs, will vary to a certain extent, with the class and type of locomotive, with the age of the locomotive, the class of service and the territory over which it operates. Thus in selecting locomotives for an operation on any division or branch of a railroad, these conditions must be taken into consideration.

In investigating these conditions on various roads it has been found, when considering the types of locomotives, with the age, class of service and territory over which they operate being the same, the maintenance cost will increase from 60 per cent to 150 per cent, with an increase in one pair of drivers, dependent upon the type of the locomotive. On one road it is found that the expenditure for locomotive maintenance varies from 19.3 cents per locomotive mile for a light Mikado equipped with the booster to 34 cents per locomotive mile for a 2-10-2 type. On another road the maintenance expenditure was 12.9 cents per locomotive mile for a Mikado type locomotive and 32.4 cents per locomotive mile for a 2-10-2 type. Thus in these two cases an increase in the number of drivers resulted in an increase in the maintenance expense of 76 per cent in the first instance and 151 per cent in the second instance. In both instances, however, the use of the heavier power resulted in a decrease in the total transportation expense per 1000 gross ton miles.

In another case the maintenance costs of the Pacific type locomotives were investigated and compared to the expense involved in maintaining the Consolidation type locomotive which was operating in the same class of service. It was found that the maintenance expense of a Pacific type locomotive was 19 cents per locomotive mile as against an expense of 30 cents per locomotive mile for the Consolidation type. Thus in this case the increase in maintenance expense because of the design of the locomotive amounted to 58 per cent.

In each of the foregoing instances the locomotive with a lesser number of drivers, when equipped with the locomotive booster delivered approximately the same power as the heavier engine, and was capable of handling the same train load. Therefore, the expense per train, with the exception of locomotive maintenance, would remain the same but the total expense per 1000 gross ton miles would be reduced substantially because of decreased locomotive maintenance.

Thus in considering power for any territory, and especially new power, it would be well to investigate the maintenance cost of the various types of locomotives in order to procure a locomotive which will give the required power output for the least expenditure of maintenance.

The railroad watchword today is economy. Then let every case of operation and the equipment necessary be considered on its own merits, taking due regard as to the effect which will be realized on the total direct expense of transportation as well as the individual items thereof. In addition it is absolutely essential to recognize the investment expenses as this one item may have a great bearing on the expected economies.

To complain of the age we live in, to murmur of the present possessors of power, to lament of the past, to conceive extravagant hopes of the future, are the common dispositions of the great part of mankind.—Burke.

From Coast to Coast in 48 Hours

Air-Rail Service Begins July 8

By G. E. Everett

Transcontinental Air Transport

THE LATEST available information at the moment this is being written announces July 8, definitely, for the beginning of the long-promised transcontinental, coordinated air-and-rail service. The official schedule of the Transcontinental Air Transport - Pennsylvania Railroad - Santa Fe System is described in this way, after numerous alterations to be expected in arranging anything so epoch-making:

Leaving Pennsylvania Station at 6:05 p.m., arriving at the new airport beside the tracks east of Columbus, Ohio, at 7:55 the next morning. From there passengers will fly to Waynoka, Okla., with stops at Indianapolis, St. Louis, Kansas City, and Wichita, Kans. From Waynoka passengers may travel by train overnight to Clovis, N. M., to be transferred there to the plane which goes to Los Angeles, stopping at Albuquerque, N. M., Winslow and Kingman, Ariz., and Barstow, Cal., where passengers wishing to go to San Francisco change to another plane.

After operations have been established on this route, night flying equipment and planes will be installed, which will make the trip from Waynoka to Kingman by night plane and from there to Los Angeles by day. The westbound trip will take about 51 hours and 52 minutes and the eastbound 46 hours and 18 minutes.

Spanning the American continent has developed, within its comparatively short history, into a process of moving its coast lines nearer to each other. The moving process started at scratch with the coasts months apart. The railroad and the motor car reduced the distance to terms of weeks and finally of days. Now comes the airplanes and the term adopted for distance becomes "hours".

Perhaps that changing of terms, from months, to weeks, to days and finally to hours, is the most romantic phase of an essentially romantic undertaking. The term "miles" loses its significance as a measure of long distances, and transportation becomes a problem not of defeating distances but of defeating time—a race against the hour hand of a clock rather than a marathon with the calendar.

It is not inconceivable that maps of the country will be presented with distances marked in hours rather than in miles as we are accustomed to seeing them.

Without question air transportation has arrived at the point where it must be granted a permanent place in the transportation scheme of our thoroughly modern country. Only two factors will prevent its general adoption—the lack of thoroughness of preparation by the air operator or a lack of confidence on the part of the traveler. The two factors are 100 per cent interdependent. The passenger will prefer his "miles" with safety and comfort to "hours" with doubtful arrival at destination.

Confidence in motor cars and railroads came slowly in their early histories, and many ridiculous reasons were advanced for not adopting the

new modes. The railroad and the motor car have obtained public confidence through education and performance. The airplane must do the same, of course, but the educational period should not be so long, and should not meet the objections which we now know were no less than silly.

One of the main objections, that of moving at tremendous speeds, largely has been overcome. The modern man and woman is accustomed to motor car speeds of from 60 to 80 miles an hour, and the additional speed provided by a plane is not so startling. Besides, one riding in a plane receives no impression of speed, merely an impression of being suspended.

The objection of hazard which so many persons bring up will, within a few years, lapse into that class we have called silly as it was applied to railroads. Even now most persons who question the safety of air travel do it almost shamefacedly, as if apologizing for being behind the times. When an objection is accompanied by a virtual apology, the objection is destined for a short life. The shamefaced ones are numbered among aviation's advocates usually after their first air experience.

And what of the air operators' responsibilities in introducing this new mode of spanning a continent? They are identical in most respects with the responsibilities of the Hills, the Harrimans and the Vanderbilts who founded our vast rail systems, the responsibility of providing reliable and regular service, in comfortable vehicles, and the duty of convincing the public of their reliability and comfort.

The air lines, too, must learn quickly a lesson which some railroads and other transportation agencies did not learn for years. That is the lesson of serving rather than attempting to dominate. Air lines must demonstrate by their performance that they are a needed part of the American transportation system. The time is not far distant when a certain type or class of transportation was offered and the passenger either accepted it or he didn't travel. We are happy to note that transportation agencies in general have since recognized the error of such a policy and are now offering every possible inducement as to comfort, convenience and courteous service and are reaping the harvest in new and increased passenger business.

The responsibility of the air line operator does not end with taking all ordinary care in the preparation of an air route. The best airplanes, the most experienced pilots, and a carefully trained personnel, are not enough. The air operator must go farther. He must demand of the industry constantly improved planes, even more experienced pilots, even more carefully trained personnel. He must recognize, for the moment at least, all the objections of the prospective traveler and, silly or otherwise, answer them with performance.

If the traveler desires some special service on his plane, the service must be made available if it is humanly possible to do so. If the traveler demands more and more speed, and he surely will, the speed must be built into the planes, but never at the sacrifice of safety and comfort.

The operator will not be allowed to consider, for a time at least, the question of profits. Until he provides the service best suited for spanning a continent as broad as ours, there will be no profits. When that service is placed before the traveling public, when the service extends into the regions passengers wish to reach, and when the passenger has been convinced that the service is a necessity rather than a luxury, then, and only then, will there be profits. The American public has never failed to support an industry or a profession which offered a needed service.

Perhaps an example of air and rail benefits would not be amiss. Mr. Jones of New York finds it necessary to get in immediate touch with Mr. Smith of Los Angeles, to explain in detail the terms of a big contract, which it is virtually impossible to do by telephone or telegraph. On the other hand, he must also be back in New York to handle personally another big contract which comes up for decision six days hence. By using the fastest all-rail schedules, he realizes he cannot go to the West Coast, and stands a chance of losing the contract there, but by using the air-rail service he can cover both situations as he wishes, be back in New York after the loss of only five business days and at the same time travel in the comfort and luxury which is impossible otherwise.

The same situation might exist for the man in Cleveland who requires three days and three nights to reach Los Angeles by rail. This business man can now make the round trip, after spending one business day with his client, in five days. The man in Cincinnati can save himself two and one-half days and so on, to and from almost any destination selected, some saving may be made.

The examples of air and rail cooperation are not entirely hypothetical. They occur daily and are recounted in the daily press. Their occurrence will increase as the public becomes aware of the possibilities.

Figures and statistics are dull and uninteresting but in this new industry they serve the purpose of indicating the rapidity with which the public has accepted the air lines as a dependable mode of going from place to place.

In the latest issue of the Consolidated Schedule for Air Passenger Lines, issued by the U. S. Air Mail Lines of Chicago, 43 air lines are listed as operating over regular schedules. The combined mileage of the lines is given as 14,632, and several of the lines do not list the mileage; a number of other passenger lines are scheduled for early operation.

The service of "T.A.T." is to be de luxe throughout, with the idea of service uppermost. Luncheons, prepared by the justly famous Fred Harvey Company, are served aloft during the two days' journey. Planes are comfortable, luxurious and the service is comparable to that of the best trains of the associated railroads or to a pleasant evening at home in your own favorite easy chair.

Planes are as safe as it is humanly possible to make them. If experience of other lines is an indication, there need be no worries for the safety of the air traveler. Among those lines

THE LAW OF THE LAND

AERONAUTICS is today an established method of transportation. The future, even the near future, will make it still more general. The city that is without the foresight to build the ports for the new traffic may soon be left behind in the race of competition. Chalcedon was called the city of the blind because its founders rejected the nobler site of Byzantium lying at their feet. The need for vision of the future in the governance of cities has not lessened with the years. The dweller within the gates, even more than the stranger from afar, will pay the price of blindness.—From Decision of Court of Appeals, New York, in re: Utica Municipal Airport.

operating over a regular schedule there have been no major casualties which could be charged to plane failure or negligence on the part of the operator. Weather conditions have always been the operator's greatest problem. "T.A.T.," in its efforts to present a service complete in all details, has organized its own elaborate weather bureau.

The bureau is composed of 83 weather reporting stations stretching across and to both sides of the entire route. Weather reports are transmitted daily and compiled at each of the main line stations. Reports also are sent aloft to pilots by means of the two way radio communication system installed on all planes. The weather hazard has been reduced to its minimum.

It will be interesting, almost an adventure, to watch the development of this latest method of spanning a continent. Perhaps in the traffic department, where the closest contact with the traveling public exists, the greatest lessons are to be learned.

In the organization of a line such as Transcontinental Air Transport, it has been the thought from the moment of its conception, that an air line cannot stand alone upon its own feet —or wings. The air line for passenger-carrying must always be a mere complement to the existing modes of travel. It must assist rather than compete with railroads, bus and electric lines, and steamer lines. It must work with and never against the established carriers.

On the other hand, the railroad or steamship line which accepts the air line as its assistant in developing new fields, and increasing general travel-mindedness in America, will be the one which is out ahead of its fellows when the transportation records are balanced a few years hence. It has become an axiom in the transportation business that any agency which increases travel or freight business, even in a limited territory or among a limited class, benefits the entire transportation field. Without doubt the axiom will be demonstrated again by the air line.

50-Passenger Monoplane

A giant 50-passenger monoplane of over 2,000 horsepower for tentative trans-oceanic service is announced under construction by the Junkers Airplane Co. in Germany. Besides its great size several other unusual features are announced in the new plane, which is known as the "Flying Wings," technically termed "type J 38."

In this monoplane the passenger quarters are in the wings, which are over six feet thick and 120 feet long. The cabin quarters, which are divided into smoking and non-smoking sections, are themselves 75 feet long. They contain convertible seats and berths. The wings also contain the plane's four 550-horsepower motors, for repair or attention while in flight. Each wing holds two of the motors, which are the "L 55" type, formerly water-cooled, but now being adapted to air cooling.

The plane will also have a well-equipped kitchen and a super-radio set. At present efforts are being centered on the construction of air-tight cabins in the wings to preserve the normal pressure to counteract the extreme cold at high altitudes. It is said that by means of a compressor device the new plane can fly at almost 20,000 feet with hardly any loss of power. However, the company has announced its intention of trying to increase its ceiling to over 32,000 feet. If tests at the new ceiling prove successful transoceanic passenger service will be carried out, according to officials of the Junkers Company.—*U. V. W.*

CONSOLIDATED
SCHEDULES AND FARES
for AIR PASSENGERS

via COMMERCIAL AIR TRANSPORT LINES

Operating on Regular Schedules
in the
UNITED STATES
and to
FOREIGN COUNTRIES

Issued by American Air Transport Association, 1610 Bankers Bldg., 105 W. Adams St., Chicago. An organization of twenty companies operating transport planes on established routes over forty states and to foreign air terminals.

Corrected to May 1, 1929

Time Card Folders of the Big Air Lines Are Very Much Like the Railroad Mysteries So Familiar to All of Us.

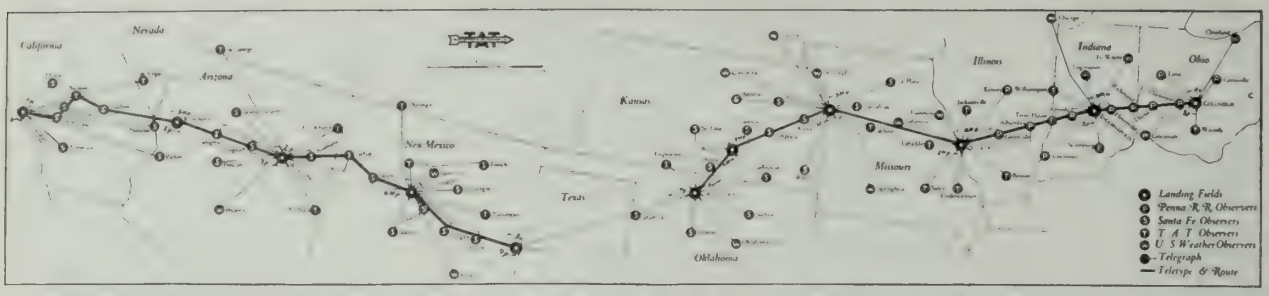
No Longer for Pleasure

The days when only "foolhardy" persons rode in airplanes merely for a "thrill" are swiftly fading out on the screen of progress, and airplanes operating on fixed daily schedules are being used more and more as a standard means of transportation and not simply for "joy rides."

This was the consensus expressed by leading aviation authorities in Los Angeles who frankly admitted that at present the airplane is not carrying a proportionately large number of passengers, but who see the tide of popular approval rapidly approaching.

Officials of air passenger lines centering in Los Angeles declare that in the earlier days of their operations the majority of passengers were persons who simply wanted to "go up into the air" once as an adventure, whereas today "repeaters," those who ride over the same line more than once, are increasing.

"People riding on planes of regularly established air lines out of Los Angeles may generally be classified as business and professional men, and tourists," Harris M. Hanshue, president and general manager of Western Air Express, said. "A large proportion of the tourists have used this method of transportation before, and they travel up and down the state because they know they can more thoroughly enjoy the scenic splendors of California in this way. Business and professional men going to San Francisco or the Northwest, or eastward, take advantage of the speed afforded by the airplane because they conserve



This Shows the Rail and Air Route Between New York and Los Angeles, Beginning July 8. Weather Observers in Radio Contact With the Planes, and the Principal Landing Fields Are Indicated. "Teletype" Refers to the Instrument Used in Transmitting Weather Reports.

valuable time, money and also energy.

"The complexities of life demand speed in every activity, and it is this phase of air travel which appeals to persons who have a real need of travelling between two cities in the shortest possible time, and with the maximum of comfort," Mr. Hanshue continued. "It must be remembered that it is scarcely more than a year since no effort was made by air transportation companies to attract passenger business. For one thing, they were busy developing the volume of air mail. Another, there were scarcely any large cabin planes with the comforts which are afforded today. If a man wanted to go from one city to another by airplane, he was told he could be carried only if the mail cargo were not too heavy. And on top of that, he had to sit in an open plane, bundled from head to foot in winter time, unable to move off the seat until the plane landed.

"Today, all lines devoted exclusively to passenger travel have splendid equipment constructed for exactly this purpose. Planes are heated for winter travel, have roll down windows for summer months, lounge chairs, sanitary and other conveniences. Companies which carry both mail and passengers have added the larger type of ships, and soon will completely divorce mail and passenger services.

"These and other factors are the reasons the airplane is acknowledged as a business and not a purely pleasure proposition. The fact that air transportation companies in Los Angeles, either now operating or proposed, are spending millions of dollars for de luxe planes should be sufficient proof that air travel is now on a sound and standard basis."

To Build Airports

According to the department of commerce, the following cities have recently proposed the establishment of airports:

Holbrook, Ariz.; San Bernardino, Calif.; Madison, Conn.; Darien, Ga.; Vandalia, Ill.; Lohrville, Ia.; Norway, Me.; Grand Marias, Minn.; St. Cloud, Minn.; Belton, Mont.; Bridgeport, Neb.; Malone, N. Y.; Lenoir, N. C.; Sandusky, Ohio; Brownsville, Pa.; Pittsburgh, Pa.; Nashville, Tenn.; Trenton, Tenn.; Dalhart, Tex.; Galaz, Va.; Norfolk, Va., and Clintonville, Wis.

The Night Transcontinental

With the completion within 30 days of the final miles of airway lighting between Salt Lake City and Los Angeles, the time for transfer of mail from the Atlantic to the Pacific will be reduced by 12 hours, says the American Air Transport Association. Air mail formerly arrived at the designated terminals on either coast too late for delivery the day the planes landed and was held over until morning. Under the new schedules mail will be dispatched to the business center immediately on the plane's arrival.

The "Night Transcontinental," which the new service will be called, will operate on a schedule permitting the day's accumulation of mail to be picked up on either coast after business hours and delivered on the second morning. Mail deposited as late as 7 p.m. Monday, in New York will arrive in San Francisco or Los Angeles at 4:30 or 5 o'clock Wednesday morning in time for the first delivery. The same situation will apply to eastbound mail.

The present "Day Transcontinental" will be continued. Intermediate points will be served, bringing Cleveland, Chicago and Reno within a day's distance of one another.

The new night service will bring cities as far west as North Platte, Neb., and Cheyenne within one day's flying distance of New York.

Every feeder line, of which there are now 19 connecting directly with the transcontinental route, will be affected by the change.

TRANSCONTINENTAL

CHICAGO-SAN FRANCISCO—1943 Miles (M & E)
(Boeing Air Transport, Inc., Balboa Building, San Francisco)

WESTBOUND Daily except Monday	WESTBOUND Daily	Mls.	(Central Time)			EASTBOUND Daily	EASTBOUND Daily except Monday
8 00 AM	8 00 PM	0	Lv	Chicago	Ar	6 00 PM	6 00 AM
.....	10 15 PM	191	Lv	Iowa City	Ar	.....	.....
10 15 AM	.....	190	Lv	Cedar Rapids	Ar	.....	3 00 AM
11 30 AM	.....	295	Lv	Des Moines	Ar	2 00 PM	2 00 AM
12 40 PM	12 30 AM	426	Ar	Omaha	Lv	1 00 PM	1 00 AM
1 00 PM	1 00 AM	426	Lv	Omaha	Ar	12 40 PM	12 30 AM
1 30 PM	.....	483	Lv	Lincoln	Ar	.....	12 05 AM
3 30 PM	3 15 AM	686	Ar	North Platte	Lv	.....	10 00 PM
			(Mountain Time)				
2 45 PM	2 30 AM	686	Lv	North Platte	Ar	.....	9 45 PM
4 45 PM	4 30 AM	902	Ar	Cheyenne	Lv	7 45 AM	7 45 PM
5 00 PM	4 45 AM	902	Lv	Cheyenne	Ar	7 30 AM	7 30 PM
7 30 PM	7 15 AM	1160	Lv	Rock Springs	Ar	.....	.....
9 30 PM	9 30 AM	1319	Ar	Salt Lake City	Lv	4 00 AM	4 00 PM
			(Pacific Time)				
9 00 PM	9 00 AM	1319	Lv	Salt Lake City	Ar	2 30 AM	2 30 PM
11 00 PM	11 00 AM	1524	Lv	Elko	Ar	12 30 AM	12 30 PM
1 15 AM	1 15 PM	1759	Ar	Reno	Lv	10 15 PM	10 15 AM
1 30 AM	1 30 PM	1759	Lv	Reno	Ar	10 00 PM	10 00 AM
2 30 AM	2 30 PM	1858	Lv	Sacramento	Ar	8 50 PM	8 50 AM
4 30 AM	4 30 PM	1943	Ar	Oakland-San Francisco	Lv	8 00 PM	8 00 AM

Passenger Fares	Oakland San Francisco	Sacramento	Reno	Elko	Salt Lake	Rock Springs	Cheyenne	North Platte	Lincoln	Omaha	Des Moines	Iowa City	Cedar Rapids
Sacramento	$11	....											
Reno	23	$13	....										
Elko	47	37	$25	....									
Salt Lake	68	58	46	$22	....								
Rock Springs	88	78	66	42	$21	...							
Cheyenne	118	108	96	72	51	$31	....						
North Platte	140	130	118	94	73	53	$23	..					
Omaha	167	157	145	121	100	80	50	$28	11				$27
Des Moines	181	171	159	135	114	94	64	42	26	$15	..		13
Iowa City	193	183	171	147	126	106	76	54	..	27	13	..	...
Chicago	200	200	191	167	146	126	96	74	56	47	33	21	21

Two-passenger cabin planes, Chicago-Salt Lake City and tri-motored, twelve-passenger planes, between Salt Lake City and San Francisco.

He is ungrateful who expresses his thanks when all witnesses have departed.—Seneca.

No man is worth his salt who is not ready at all times to risk his body, to risk his wellbeing, to risk his life, in a great cause. —Roosevelt.

A Hobo Inspects Some Equipment

Why An Actor Likes A Lima

By John Francis Natteford

During the course of an evening in the library of the Writers' Club in Hollywood, not long ago, one of the members, a scenario writer of national reputation, told a story or two of his wandering days. Among other interesting things the writing man told of a journey he was compelled to take across the continent, without much money, years ago, in order to get to New York in time to claim a job waiting for him. As he described his experiences it seemed that certain railroad equipment was much better suited to his under-cover riding than was any other. So unusual were this traveler's views that he was asked to set them down on paper. To be quite careful about technical details the story was sent to Vice President W. E. Woodard of the Lima Locomotive Works, Inc. His comments appear at the end of the article.—*The Editor.*

When I was a young man of the wider world, and the rails led to travel and adventure, I studied equipment all the way from Monterey to New York City. Rolling stock was surveyed from every conceivable angle, for a slight difference in design meant success or failure in holding down a ride, occasionally the threat of death, and once the alternative between liberty or prison. Indeed, I kept out of jail on this occasion as the result of knowing the unique construction of a Lima locomotive.

In McAlester, Oklahoma, where I had found a precarious living for a few weeks as an actor with an open air stock company, I pawned a fur coat for another performer, a simple, small-town boy who was sure that I, being an experienced traveler, could drive a better bargain with the pawnbroker.

The next night a girl of the company whispered a warning that the police were looking for the boy who had pawned a stolen fur coat. Five minutes later the small-towner had both eyes closed and a knock-out against his record. Ten minutes later a retired actor found three policemen watching for him at the Rock Island station. They knew he was a hobo, and they thought they knew every trick of the breed. They watched the next train, examined it top and bottom, walking ahead to guard against a jump to the baggage car as it pulled out; but the hobo rode it.

Identifying the Lima locomotive, I had slipped up on the dark side while the officers were playing their flashlights under the coaches. On top of the pilot I found the square opening left by the designer to facilitate inspection and repairs. There is ample room to squeeze through. Sitting over the pilot axle, I crouched and listened until I heard the conductor's signal on the air. Then I lifted myself to the top of the pilot, huddling with my back to the boiler, knowing that I inhabited at that moment the darkest spot in the universe—the area directly under a blazing headlight. And thus I rode past the officers. I knew my equipment.

"X" Marks the Spot Where the Hobo Sat.

At every stop, I went past the station crowds in the same invisibility, ducked under the cowcatcher as soon as motion ceased, and crawled out at the warning of the air.

Storm clouds gathered, and suddenly as the train rattled along between the hill towns a Norther broke. The 40-mile train bucked a 60-mile wind that brought big, heavy hailstones. They weren't as big as hen's eggs, but they were as hard as bullets. The ordeal was too much for human flesh to endure. Finally, when I could stand it no longer I went back on the fireman's running board, clinging to the brass with both hands, praying that the crew wouldn't take me for a train robber. I had been shot twice, but never from a speeding locomotive.

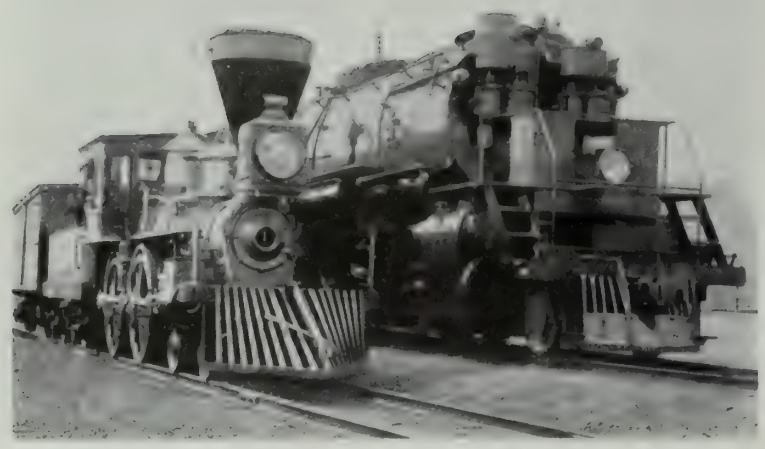
Due to the hail crashing on the window, my tapping was unheard until finally the fireman looked up from trimming his grate—his expression that of a man who thinks he sees a ghost. But he opened his window, helped me in, and found a sandwich in his dinner pail. The engineer donated pie. When I had eaten their food and smoked their tobacco, I was safe in the state of Arkansas.

We didn't care much, in those days, for the safety steel coach. Compared to the supporting rods and shielding battery boxes of the wooden Pullman, its structural steel belly left much to be desired. These wooden Pullmans were the favorite vehicles of the penniless traveler. The battery box supported his back, one rod the lower region, and one his ankles. First his feet went to sleep, then the circulation of his legs stopped entirely. When this became too painful he lay on his side on one rod and gripped the other with his hand. Stupefied by the deafening roar of the train and the rushing air, he dozed. If his hand slipped and he lost his balance—well, he had reached his destination that much sooner.

Three of us went under the same coach on the Golden State Limited, eastbound, at Lordsburg one night, and only two crawled out at Deming, the next stop. We couldn't tell when we had lost the third man. In that inferno of sound, a scream would be like the puny wail of a child in a cyclone.

"We're the lucky guys," said the other survivor. "Let's stick together."

And we did. At Tucumcari we visited the enginehouse and I secured



The Little Old William Crooks, and a Modern Freight Locomotive, No. 2030, Great Northern Ry.

a job passing coal on an orange special to Dalhart.

"I'll be right with you," said my friend. "Those reefers are easy underneath. There's a flat plate runs from the outside frame to the air-brake works. It's just big enough to snuggle into, safe as a hammock and almost as comfortable."

At Dalhart I dropped my scoop and went back to look for him. I found him sitting on a derail, looking like a man who had got the worst of a razor duel. At high speed, a chunk of granite ballast had flown up, struck the steel frame, and shattered itself to splinters, right in his face. Some of the cuts were three inches long.

"We're still lucky," he said. "My eyes are all right."

Much as they approve certain types of equipment, hoboes cordially detest others. For instance, the treacherous invisible stub switch that lies in wait to impale a man's groin when he leaps from a freight train entering a yard. And I would suggest re-designing the coupling gear of mail cars, too.

After a long ride across Kansas—450 miles between sleeps—I found myself on the baggage car platform of a crack Santa Fe train. When it was impossible to keep my eyes open any longer, I twisted one arm around a brake rod and lay down to sleep. Later I was awakened by a gentle pinch just above one elbow. Turning my head as I lay, I saw that my other arm had dropped between the upper and lower plates of the expansion platform. In rounding a curve, they opened like a shears, and when the train straightened out, the shears would have closed on that arm, had it not been for that warning pinch.

Approaching New York, I found eastern equipment surprisingly different. I saw my first suburban commuter train just out of Washington, and jumped it with every confidence that the first coach would be either mail or baggage. Imagine my chagrin when I looked through a glass door and saw a conductor taking up tickets!

But no one had seen me, so I leaped to the top of the tender and lay down over the water, protected from observation only by an eight-inch rim and a thin, hungry body. I decided that this new and disagreeable kind of train was one to leave at the very first opportunity. After an evening of agony, or five minutes by a commuter's watch, the train stopped at Hyattsville. There I got up from the tender and left it with the same motion, alighting with a thud on the southbound track. Scrambling to my feet I saw the Washington Limited also occupying that track, about a hundred feet away. I stepped back and found my shoulders pinned against a fence between the two tracks. Gripping the fence, I watched the cylinder head on the locomotive approaching at top speed. It seemed an enormous projectile, aimed right at my heart. I flattened my chest, but as I shrank the diabolical thing seemed to grow. When it became larger than a bass drum, I closed my eyes.

A roar, a clutch of sucking air, and the train passed. That cylinder head went by with only half an inch of clearance. I know it.

The crippled crossing tender saw it all. After the local pulled out he shouted:

"Served you right, you smart-aleck! Thet's how I lost my laig!"

Which is why I believe that no possible economies of operation can justify the use of larger cylinder heads. They are altogether too large now.

And I got the job in New York.

Note from Vice President Woodard: "I am extremely pleased to know that Mr. Natteford found a comfortable place to ride on a Lima locomotive. We do try to make an all-purpose machine, but I had never realized before that we design one particularly suited to hoboes. I enclose a small photograph showing where, doubtless, the young man found seclusion during his wild ride."

The Diminishing Return

For exactly eight years the railroads of the United States have struggled to achieve the government-stipulated "fair return" of 5¾ per cent. In not one of those years have they succeeded. This situation is not the fault of the railroads, which have been constantly raising their efficiency and effecting economies. It is the fault of high taxes and unwise legislation that has often gone beyond its legitimate sphere of activity in railroad affairs. And the foremost of these is taxes. Exorbitant taxation amounts to oppression. In the case of the railroads, it must result in retrogression and a lowering of the standards of service, a thing that would strike a blow at our farmers and our industries. Thinking citizens must meet the problem and assure the railroads a fair income if general prosperity is to remain undiminished.—*Dover (N. J.) Index.*

Freight Rates the Cheapest Thing

Thomas D. Campbell of Montana, president, Campbell Farming Corpn., known as the world's greatest grain-grower, says:

"The cheapest thing in our business so far as service is concerned is freight rates.

"It is more evident to me every year that the agricultural problem is going to be solved by the application of engineering and scientific methods, thereby reducing the cost of production, rather than from any other source."

Every crime will bring remorse to the man who committed it.—*Juvenal.*

Kansas City to Los Angeles 13 Hours!

Western Air Service Began June 1

By H. A. Burgess

Asst. to President, Western Air Express

PALATIAL air liners for daily service between Los Angeles and Kansas City, established by Western Air Express, went into commission Saturday, June 1. These planes will make intermediate stops at Kingman and Holbrook, Arizona; Aubuquerque, N. M., Amarillo, Texas, and Wichita, Kansas. This is the longest air route exclusively for passengers in the western half of the United States, and one of the longest in the world.

The new air line parallels closely an old established railroad route. Thinking it over, the conclusion might be drawn that throughout this distance, 1,425 miles by air, the airplane is entering into direct competition with an established railroad system. Viewed as a competitor the air passenger line should be opposed by the railroads. But such has not been the case.

It has been my interesting experience to talk over this supposed problem of airplane vs. railroad with a majority of the leading executives of the great railroad systems operating east of the Missouri River. My purpose was to make contact with executives of every railroad having direct connection with Kansas City, and arrange a traffic agreement by which its passengers would be routed through Kansas City.

During a period of 42 days I visited 21 cities, going as far south as Dallas and as far east as the Atlantic Seaboard. In every one of these cities I met and conferred with railroad officials. The result is that I have acquired a composite view of what a great many rail executives think about the growing popularity of air passenger transport.

My conclusion, based on what probably is the most extensive investigation yet made by an air transport official, is that there will develop no spirit of competition between the railroad and the airplane in the carrying of passengers. To the contrary, there promises to be the closest of cooperation based upon the sound theory that one must be complementary to the other.

I believe that if the motor bus was making its advent now it would be viewed from a different angle than the scorn and opposition with which it was greeted by rail transport officials a few years ago. Numerous rail officials have told me that such would be the case. There is going to be no such attitude, however, toward the progress of air passenger transport. The railroad officials are going to welcome the airplane, and make use of it. They have told me so, and I believe them. It is the better policy for all concerned.

This Type Plane, Fokker 10, Flying Between Los Angeles and San Francisco, Is Used On the Kansas City Flights.

My conferences were held with officials of the following railroads: Santa Fe, Wabash, Baltimore & Ohio, Burlington, Louisville & Nashville, Big Four, Chicago, Milwaukee, St. Paul & Pacific, Chicago & North Western, the Rock Island, the Frisco, Chicago, Great Western, Missouri-Kansas-Texas, Chicago & Alton, Ft. Worth & Denver, New York Central, Missouri Pacific, Kansas City Southern, the Monon Route, and the Southern Railway.

All these railroads have arranged, or have agreed to arrange, for the exchange of passengers with Western Air Express over the new route established between Kansas City and Los Angeles. It probably is the most extensive general traffic arrangement ever made by an air transport company. It will be recognized, too, that at least one of these railroads has become definitely linked with another air transport concern that, in a way, will be a competitor to the Kansas City-Los Angeles route established by Western Air Express.

It all goes to prove that the railroads are not going to oppose the air transport companies. They are, in fact, going to cooperate with them.

The reasons for this become apparent if we consider, for a few moments, the operating schedule of the new air line between Kansas City and Los Angeles. Business interests of our nation are closely interwoven. There is scarcely any enterprise of real magnitude that does not have trade tentacles stretching across the nation, some of them direct, others indirect, but all more or less important.

Suppose we take the hypothetical case of a Chicago business man. He has an important transaction to close at Los Angeles, but finds it difficult

to be absent from his office for any great length of time. The details of the transaction are such that correspondence will be unsatisfactory. Telegraphing will be worse, and the telephone only passably good. But if he could sit down across the desk with his client the entire deal could be adjusted and closed within an hour or two.

The Chicago business man closes his office in the evening, and that night takes a train to Kansas City. He boards the airplane in the morning, and that evening he is at Los Angeles, for the airplane makes the trip from Kansas City to Los Angeles in approximately 13 hours. He can transact his business in Los Angeles that night if he desires, leave by airplane the next morning, reach Kansas City that evening, and be at his office in Chicago the following morning.

Or take the case of a Chicago resident who yearns to spend a vacation on the Pacific Coast, but finds business or other conditions such that he can not spend more than a week away from his office. To make the trip by rail, nearly three days travel time each way, would be a futile gesture. But Saturday night he takes the train to Kansas City and Sunday evening, by grace of the airplane he is in Los Angeles. He plays golf all week, leaves for the East by airplane Sunday morning, and is back at his office bright and early on Monday.

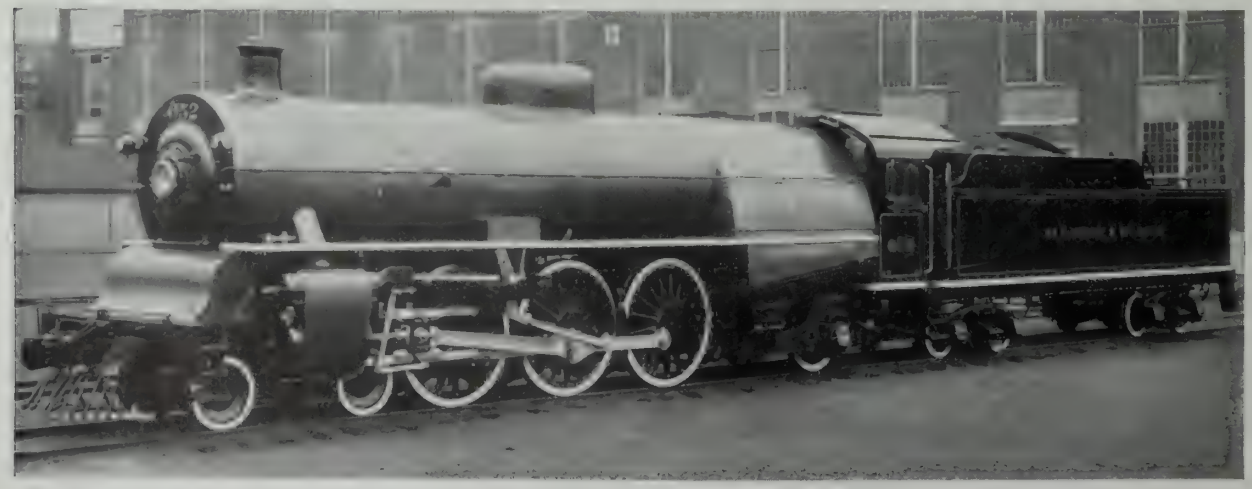
This hypothetical story about the Chicago business man is not only true about him, but true of millions of other persons who live in the Middle West and in the East. It applies equally to those other millions who live upon the Pacific Coast and who may desire, for one or more of a hundred reasons, to travel eastward.

P&A Photo.

J. T. Loree, Vice President and General Manager, in the Cab of the New Delaware & Hudson Engine.

The new Kansas City-Los Angeles airplane has brought that great circle of territory extending from St. Paul and Minneapolis east to Cleveland and Indianapolis and south to Louisville, Dallas and Ft. Worth within approximately 30 hours travel of the Pacific Coast; and it has brought the Pacific Coast within a similar distance of this vast mid-western territory. From coast to coast the travel time has been cut to less than 48 hours.

Experienced traffic experts representing our leading railroads have told me, and I believe them, that the reresult will be that more people will travel because of the advent of the airplane. In other words, the airplane will create an emergency passenger total that never before has been possible. The day of more personal contacts and conferences will be speeded. Fewer letters may be written, fewer telegrams dispatched, and fewer long-distance telephone conversations, but there will be more passengers, both for the railroads and the airplanes, traveling across the continent to keep important business engagements, to answer emergency calls from relatives who are ill, or perchance just to play golf or take a dip in the briny deep—either the Atlantic or the Pacific, whichever you prefer.



The Stream-Line Effect, the General Exterior Appearance of the Delaware & Hudson's Latest Acquisition, Shown Here, Reminds One of Foreign Locomotives.

What! No Stop to Change Crews?

The Corridor Tender in England

By Charles Elliott

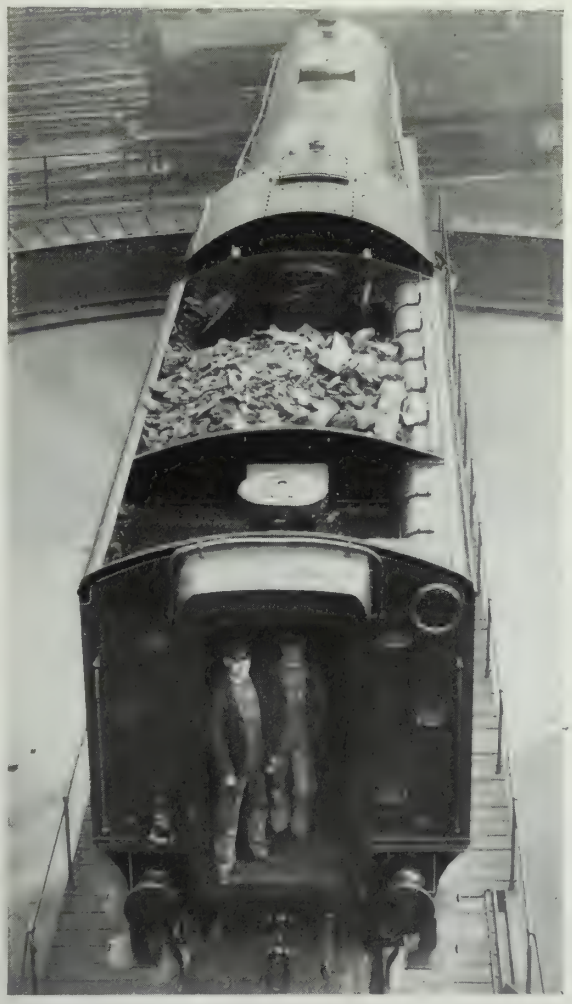
VESTIBULED passenger cars today are standard equipment throughout the railroad world. Why not vestibuled locomotives? Here's the question that worried Henry Gresley, chief mechanical engineer of the London & North Eastern Railway of England, quite a lot until recently. Now the vestibuled locomotive is an established piece of equipment on this leading British road, which, just 104 years ago, operated over its Stockton & Darlington section Stephenson's quaint "Locomotion No. 1," the daddy of all railroad locomotives.

All the crack trains like the "Flying Scotsman" and the "Queen of Scots", running between the King's Cross terminal, London, and Edinburgh, probably will be hauled, this summer, by giant "Pacifics" constructed in the Doncaster locomotive shops, and furnished with a side corridor along the tender, giving direct communication for the engine crews between the cab and the first car of the train.

The summer schedule for the "Flying Scotsman" gives a run of just 8¼ hours for the 392½-mile trip between the English and Scottish capitals. For 60 years this most famous of all European passenger trains has been speeding daily between London and Edinburgh, and it has for long been a pioneer among fast trains. Hitherto it has been the custom for the "Flying Scotsman" to make three stops en route, but modern demands for fast travel have led to the introduction of a non-stop summer schedule of 8¼ hours for the London-Edinburgh run, the longest regular daily non-stop passenger run in the world.

This is where the vestibuled tender comes in, to obviate the changing of locomotive crews on the journey, thus rendering unnecessary any intermediate stop.

The new vestibuled tender has been evolved out of the standard tender as utilized on the "Pacific" locomotives of the L. & N. E. road. It is 25 feet 10 inches in length, and is carried on eight wheels 4 feet 2 inches in diameter. Some nine tons of coal and 5,000 gallons of water are carried, and additional water supplies are taken while running by the use of tender scoops and track troughs.



At the Right of the Vestibule You Can See the Top of the Tender Corridor.

The tender weighs when empty 30½ tons, and its special feature is the side corridor and vestibule. This corridor is built in the tender on the right hand side. It is five feet high and 18 inches wide. At the rear end the corridor terminates in a Pullman vestibule and automatic coupling very similar to those employed on ordinary passenger cars. The corridor takes up a certain amount of space normally given over to coal supplies, but the new tender presents a remarkably spick and span appearance when attached to the giant "Pacific" engine.

Under the operating system introduced with the corridor tender, two sets of locomotive men are carried on the train on its departure from London or Edinburgh, and the other engineer and fireman make themselves comfortable for the first 200 miles of the run in the leading car of the train, in which a small compartment is reserved for their exclusive use.

After the first set of men have completed a run of about 200 miles (or roughly, halfway between London and Edinburgh), the engineer and fireman who have been resting in the leading car pass through the corridor on the tender to the cab. They then take over the duties of driving and firing, and the two men who have been relieved go back from the cab through the corridor to the passenger car vacated by the first crew. There they rest for the remainder of the journey, take their meals like paying passengers, and generally do the thing well at the railroad's expense.

The whole arrangement is a most simple and convenient one, and the locomotive crews are enthusiastic about it. Non-stop runs such as this impose no undue strain on the men. The locomotive authorities of the L. &

And 'Ere's the Flying Scotsman With Its Corridor Tender and Everything, Crossing the Royal Border Bridge at Berwick-on-Tweed.

N. E. are very properly rather proud over their success in evolving the first corridor tender ever run on a railroad.

Normally the "Flying Scotsman" consists of nine ordinary passenger cars and a triplet dining-car set with three vehicles carried on four bogies. The total length of the train is 682 feet and the total weight works out at about 400 tons. A feature of the "Flying Scotsman" service is the fact that all meals are cooked by electricity, no gas whatsoever being employed on the train.

Non-stop running, electric cooking, luxurious arm-chair seats, barber's shop—these are features which have gone to popularize this world-famous service. The corridor tender idea seems worthy of investigation in many lands other than Britain, and in America its utilization at no distant date appears probable.

Rail Relaying Record

What is credited with being a record in rail relaying was recently achieved on the Long Island Railroad between Roslyn and Greenvale, Oyster Bay branch. Three hundred and two rails were relaid in 331 minutes of actual working time with a force of 74 men and seven foremen, the work being in direct charge of Assistant Supervisor DeMoyer, who, with seven foremen, planned and executed the remarkable performance.

The work was done under traffic, and during its course it was necessary to tie in six times for trains. No one was injured during the intensive work, no trains were delayed, and the work was accomplished by renewing rail by rail, by hand. The gasoline drill was used by the signal department for drilling bond holes, which enabled them to keep up with the work, they having three men on the job in charge of Foreman Hill. The rail was set up ahead of time with a pair of angle bars attached to each rail. The rail was fully spiked, bolted and anti-creepered as it was laid.

Hesitate and Be Safe

A railroad crossing is a good place to hesitate, particularly if you are driving an automobile. It is the unhesitating fellow who creates all the hullabaloo about the grade-crossing hazard. Hesitate long enough to make dead sure you can cross safely and you have solved for yourself this problem.

Through Vestibule and Corridor, From the Head Car Where They Have Been Sleeping, the Relief Crew Appears. The Broad Grin Indicates This Is the Fireman.

Silas Zwight And His Big Engine

A Designer Ready For An Emergency

By Parker Holmes

TRAVELING through Oklahoma, a few years ago, in his business car, a railroad official invited a somewhat famous Indian chief to be his guest at luncheon, and take a ride to the next station. When the dishes had been cleared away the official turned the knobs on his superheterodyne, and finally picked up the voice of President Coolidge addressing an audience in the Waldorf-Astoria in New York.

Everyone was impressed, naturally, but no one so deeply as White Horse Charlie. He had become accustomed to the wonders of the telephone, the telegraph, the talking machine, but here was a box, in a steel coach, traveling 25 miles an hour; no outside wire connections, no springs, no record; just a voice coming out of a mysterious piece of machinery. The chief was very solemn. Turning to the railroad man after he had examined the radio he inquired, "What kind of man made this?"

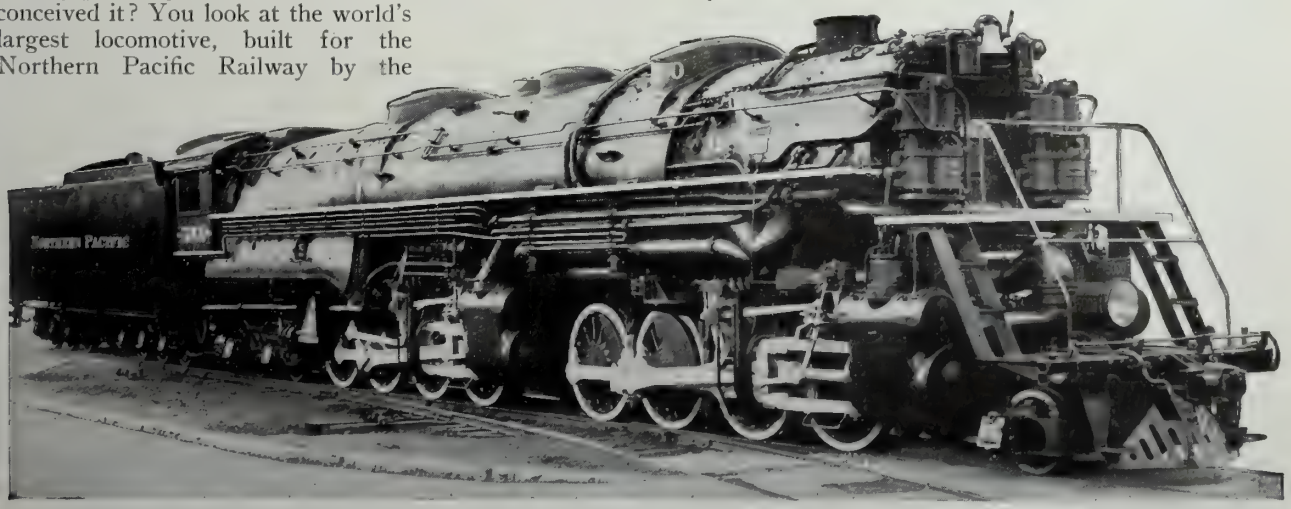
"White Horse Charlie's words were more interesting than the President's," said the railroad man, afterward. "He went right to the fundamental thing. The products of science and the mechanical world are wonderful. But what about the men who made them?"

The same thought comes, doubtless, to all intelligent persons when they see a great piece of machinery, so powerful that it amazes you, functioning perfectly. What kind of man conceived it? You look at the world's largest locomotive, built for the Northern Pacific Railway by the American Locomotive Co., and someone says it was designed by Silas Zwight. That, you say to yourself, is a good name. It seems to fit into the story of a great achievement, but unless you have been rather close to the mechanical end of transportation, or have spent your leisure hours studying the thrilling pages of the Pocket List, it's a name you have never heard. After you have studied his record, or what little you can dig up about him, you come to the sensible conclusion that the family name itself is responsible for this. Any name beginning with the last letter in the alphabet carries a handicap precluding the possibility that it can ever head a list.

Silas Zwight, Gen. Mech. Supt. N. P. Ry.

But the bottom of the alphabet never can keep Silas Zwight from the top. The pity of it is that no one seems able to say whether he ever stole watermelons, went fishing on Sunday, or took the girls riding in the quarter-inch buggies of the Roaring '90s. Among the average railroad men there is a rubber stamp theory that all the world cares or needs to know about them is the date and place of birth, when they began railroading, and what jobs they have had, the whole dismal record ending with a dash, indicating space left for the date of death. There ought to be a law against this form.

In the case of Silas Zwight vs. the Hall of Fame there are no discoverable records indicating that he ever was born. The only absolutely positive facts available are that he has scads, or perhaps one should say hordes of friends among railway mechanical officers and men, that his position as general mechanical superintendent for the Northern Pacific has never created a demand for larger hats, in his case, that his relationships with men are the most delightful, and that some, upon occasion, have called him Si. This seemed to be a hopeful note. Any man whom people call Si must be all right, not hard boiled.



"Yes, sir," said one of Mr. Zwight's good friends, the other day, "Si certainly is all right. Did you ever hear the one about the New England farmer named Si Perkins? His hens got the pip and—".

"Never mind about Si Perkins. What we want is the low down on Si Zwight. Did he ever—"

"Have you seen the big engine he designed? Biggest in the world, and I'm telling you, son—"

"Let us keep off the engine for a moment or two. What about Si Zwight? Where did he—"

"Well, this is the dirt: Silas Zwight has served many years on the general committee of the mechanical division of the American Railway Association, and is a member of the locomotive design and construction committee of that organization. He began his railroad career on the Northern Pacific in 1888 as an engineman on what is still known as the Dakota division. Stands to reason he must have been born long before that time, but I don't know when. His untiring efforts in those early days, and his ability as a manager, while road foreman of engines, in directing the operations through the extremely severe winters encountered, won recognition quickly from his superior officers, and this resulted in his appointment as master mechanic in which position he served on several divisions. He was appointed general master mechanic of the eastern district in 1911, and in 1918 became assistant mechanical superintendent. Three years later he was made mechanical superintendent of the eastern and central districts, and in 1923, was promoted to the post of general mechanical superintendent of the entire line, having jurisdiction over both the locomotive and car departments. And he has that position today."

"Now, what about the engine?"

"It's a big success. Mr. Zwight, who knows all there is to know about the region through which the Northern Pacific runs, designed the locomotive to overcome operating difficulties in Montana and North Dakota; we call them the Bad Lands. The section to which I refer has an undulating profile having five controlling grades so separated that helper service is impracticable. Consequently the train tonnage over this district has been limited to what one locomotive can handle over the 1 per cent controlling grades. This resulted in the necessity for splitting into two trains every full tonnage freight train moving in either direction from the adjoining divisions. The problem confronting the operating officers for many years has been the question of what could and should be done to improve the train operation over this restricted district.

"A thorough study and complete analysis of the several suggested plans resulted in the decision to provide a locomotive of sufficient power to handle the desired tonnage satisfactorily. As it was necessary from the standpoint of economy that the lignite coal of about 8800 B.T.U. content from the railway company's open pit mines situated in that territory be utilized, and furthermore, as the water available for locomotive use in that territory is high in foaming salts, the boiler, firebox and grate area necessarily have to be of very liberal proportions.

"This locomotive has given excellent service, and has in general performance surpassed all expectations. It develops 6,000 horsepower, and weighs 1,118,000 pounds.

"It has been hauling trains of 100 loaded cars at 30 miles an hour. It is handling in one train the loads which previously had to be split up into two trains to negotiate the stretch between Mandan, N. D., and Glendive, Mont."

Some engine?

"I'll tell the world. Furthermore, Si Zwight is some designer."

Wonderful Trains in '81

The sharp contrast between the luxuries of travel now provided and what was believed to be absolutely the final word in such matters 50 years ago, was brought to mind rather amusingly, one day last month, when the Denver Rocky Mountain News celebrated its seventieth birthday anniversary. As a compliment to the paper the Burlington System ran a four-column advertisement in the birthday issue, and in it reproduced an advertisement it had given that paper April 8, 1881, nearly half a century ago. The man who wrote that old ad' must have been recruited from John Robinson's Stupendous Aggregation of World Marvels, the popular circus of the early '80s. Here's what he said about the Burlington's remarkable service; the capitalization is left just as it appeared originally:

☞No other line runs Three Through Passenger Trains Daily between Chicago, Council Bluffs, Omaha, Lincoln, St. Joseph, Atchison, Topeka and Kansas City. Direct connections for all points in Kansas, Nebraska, Colorado, Wyoming, Montana, Nevada, New Mexico, Arizona, Idaho, Oregon and California.

The Shortest, Speediest and Most Comfortable Route via Hannibal to Fort Scott, Denison, Dallas, Houston, Austin, San Antonio, Galveston and all points in Texas.

The unequalled inducements offered by this Line to Travelers and Tourists are as follows: The celebrated Pullman (16-wheel) Palace Sleeping Cars, run only on this Line, C. B. & Q. Palace Drawing Room Cars, with Horton's Reclining Chairs. No extra charge for seats in Reclining Chairs. The famous C. B. & Q. Palace Dining Cars, Gorgeous Smoking Cars, fitted with Elegant High-backed Rattan Revolving Chairs for the exclusive use of first class passengers.

Steel Track and Superior Equipments, combined with their Great Through Car Arrangement, makes this above all others, the favorite Route to the South, South-West and the Far West.

Try it, and you will find traveling a luxury instead of a discomfort.

Through Tickets via this Celebrated Line for sale at all offices in the United States and Canada.

Quite a Town, Chicago

Railroad passenger traffic has reached such a volume in Chicago that the number of arriving and departing passengers is more than 138,700,000 yearly, according to a report issued by the Chicago Association of Commerce.

Daily traffic is estimated at more than 380,000 passengers of whom 325,000 are suburban commuters. Every time the clock ticks four persons embark or detrain at one of the railroad terminals, the report stated.

A new train arrives or departs every forty seconds. The number of trains serving the city daily is placed at 2,050.

Good to the Last Drop

Teacher: Name a poisonous substance.

Boy: Aviation.

Teacher: Aviation? Explain yourself.

Boy: One drop kills.—*Boston Transcript.*

We have too many people who live without working, and we have altogether too many who work without living.—*Dean Brown, of Yale.*

There are some faults so nearly allied to excellence that we can scarce weed out the vice without eradicating the virtue.—*Goldsmith.*

The world must have great minds, even as great spheres suns.—*Bailey.*

Economy is a Savings Bank

How the T & P Cuts Fuel Costs

By A. P. Prendergast

Mech. Supt. Texas & Pacific Ry.

We are all interested in, and more or less experienced with the many locomotive fuel saving appliances that have been designed for improved service in recent years, and whose merits have become recognized, so that they are not only being generally specified for new equipment, but are being applied to existing locomotives to a remarkable extent, especially so when the heavy expense of the first application, involving special authorities, is considered. In other words, a substantial margin of saving or profit above cost and maintenance usually must be pretty conclusively established before such applications are authorized in quantity.

The policy of our president and entire management on the Texas & Pacific is open and receptive toward improved and economical appliances for motive power and shop plant equipment that give promise of ultimate benefit; and where the net result is found sufficiently creditable, I have urged the application to the greatest extent possible. This with full knowledge that maintenance of equipment expenses will be increased thereby, and the assurance that I am held strictly accountable for any such increases. The result is that our locomotives are now largely equipped with modern fuel saving improvements that automatically contribute to reduced fuel consumption, while enabling the locomotives to operate at their maximum tractive capacity.

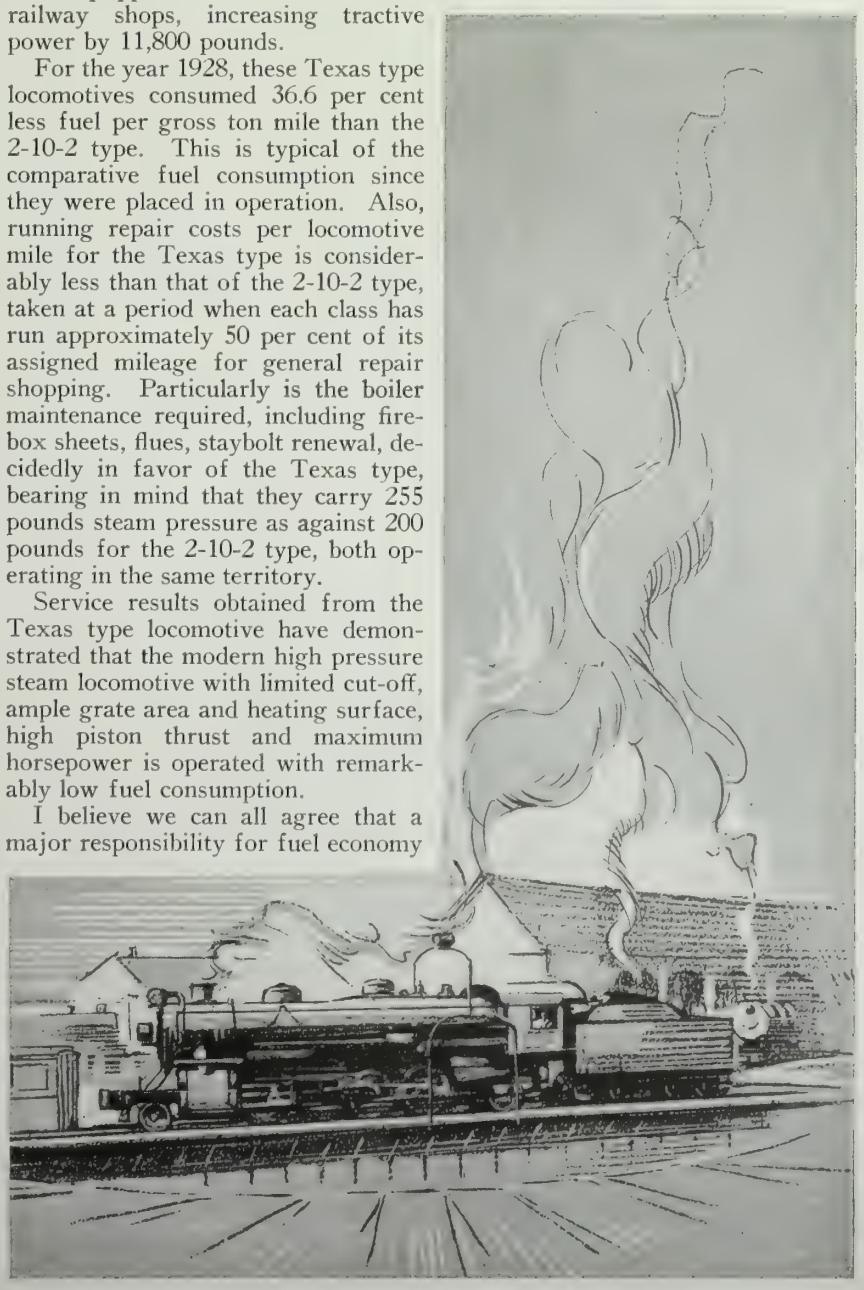
I trust I may be pardoned for dwelling somewhat on the comparative performance of our freight locomotive equipped with 60 per cent limited cut-off, in view of the extensive general interest manifested in them since they were placed into service, beginning in 1925. These are known as the "Texas" 2-10-4 type, so named for the great Lone Star state in which they were first operated and designed for the Texas & Pacific Railway as most suitable for its requirements; having 29 by 32 inch cylinders, 303,000 pounds weight on drivers, 97,900 pounds tractive power, including booster, and carrying 255 pounds steam pressure.

They were placed in through service in districts of our denser freight traffic, operating over ruling grades in both directions of from ninety-five hundredths to one and five-tenths per cent, and supplanting 2-10-2 type locomotives having 28 by 32 inch cylinders, approximately 265,000 pounds weight on drivers, 67,700 pounds tractive power, and carrying 200 pounds steam pressure; some of these having been equipped with boosters in our railway shops, increasing tractive power by 11,800 pounds.

For the year 1928, these Texas type locomotives consumed 36.6 per cent less fuel per gross ton mile than the 2-10-2 type. This is typical of the comparative fuel consumption since they were placed in operation. Also, running repair costs per locomotive mile for the Texas type is considerably less than that of the 2-10-2 type, taken at a period when each class has run approximately 50 per cent of its assigned mileage for general repair shopping. Particularly is the boiler maintenance required, including firebox sheets, flues, staybolt renewal, decidedly in favor of the Texas type, bearing in mind that they carry 255 pounds steam pressure as against 200 pounds for the 2-10-2 type, both operating in the same territory.

Service results obtained from the Texas type locomotive have demonstrated that the modern high pressure steam locomotive with limited cut-off, ample grate area and heating surface, high piston thrust and maximum horsepower is operated with remarkably low fuel consumption.

I believe we can all agree that a major responsibility for fuel economy rests with the mechanical departments of the railroads, not alone toward designing their new locomotives and in the application of improvements, but as well for their proper care and preparation at terminals. In this the entire organization from the highest to the lowest employe is vitally concerned and must be educated and instructed to do his part.



The duties at the enginehouse terminals have become more and more exacting, with the advent of the large modern power, long runs of 500 miles or more, the demand for a minimum of terminal delay and more perfect service throughout. Modern terminal attention includes a most careful examination and test of every part of the locomotive to discover defects; valves and cylinders tested for blows; running and driving gears checked for lost motion; boosters, feedwater heaters and other appliances thoroughly tested out, and all boiler appurtenances tested for leaks. The same careful attention is given when the locomotives are offered for service to insure that defects have been properly corrected.

Periodical examinations are also made in the enginehouse to discover worn cylinder and valve rings, defective superheater units, steam pipe connections and other defects at time of the monthly and quarterly federal inspections. These examinations bring to light defects that otherwise would develop in service with resultant high fuel consumption.

Among the developments of the modern enginehouse worthy of mention, of which we have several, is equipment for utilizing the heat from incoming locomotives for heating the water for filling up to as high as 200 degrees Fahrenheit. The direct steaming process is of particular interest at this time. This consists of charging the locomotive boiler with steam from the shop power plant, and keeping it under pressure until required for service, when the locomotive is moved from the enginehouse under its own steam, but without being fired up.

The advantages of this system are manifold. For example, we filled the boiler of one of our 2-10-2 type locomotives with hot water recently, in 12 minutes through one blow-off cock connection, and supplied 150 pounds steam pressure by having steam pipes connected to each of the blow-off cocks, in 16 minutes, a total of 28 minutes.

One of the many other cases where engines are required on the minute for wrecking or other emergency service is that of a Pacific type engine after leaving Fort Worth station on limited passenger schedule for El Paso and California, burst a blow-off cock body while running, and came to a stop near the shops. Another Pacific engine of the same type was standing dead in the enginehouse. By applying the two pipe connections from direct steaming lines, the boiler was filled, the engine steamed and the train again was moving within 40 minutes after the accident. At times when we are pressed for engines, this advantage of the direct steaming facility assists in reducing the average time in turning engines, thereby increasing the locomotive miles per locomotive day.

The Subway Terminal, Los Angeles, Hill Street Near Fourth. Trains Start From Here for Glendale, Burbank, and Other Interesting Places.

A recent test at our new Lancaster shops, Forth Worth terminal, developed a 20 per cent fuel saving and a 35 per cent reduction in average time of steaming up locomotives for service as compared with the old method.

It is cheaper to generate a pound of water into a pound of steam in a modern high pressure boiler plant than it is in the locomotive boiler itself as a separate unit.

The radical departures in methods of handling locomotives at terminals have resulted in large economies not previously developed. This goes to prove that there is still a wide field for future efforts in the direction of fuel economy.

In the maintenance of locomotives there is somewhat of a disposition to encourage longer service or greater mileage between shoppings for classified repairs, which I firmly believe is a mistaken idea for ultimate economy in repair costs. It is my experience that by giving locomotives timely classified repairs, the expense usually is fully offset by reduced running repair costs, reduced time out of service for repair work, better service obtained, and last, but not least, an improved fuel performance automatically results, influenced by removing scale and sediment from the walls and water surfaces of the firebox, boiler and flues; as well as from the improved physical working condition of the machinery.

It is interesting to note here that notwithstanding the increased average size of the locomotives we are now using with higher piston thrusts, axle loading, increased boiler pressures, new and enlarged tenders and increased capacities, and other appliances that provide additional tractive effort with economical use of fuel and steam resulting from the limited cut-off system of steam distribution and expansion, the average cost of repairs per locomotive mile for 1928 is less than for 1921, following federal control, while the cost per ton tractive power has decreased 27 per cent in that period. This means that the achievement in reduced maintenance cost closely follows that attained for fuel. This is all the more remarkable when the improved general maintenance condition of locomotives is considered, which is indicated in the annual reports of the federal locomotive inspection bureau.

However, no other operating expense has been so materially reduced during the past 20 years as the unit of fuel consumption. In reviewing performance records on the Texas & Pacific since our line began its fuel campaign in 1917, I note that a reduction has been made in locomotive unit fuel consumption of 47 per cent in freight service, 50 per cent in passenger service, and 30 per cent in switching service, and this I believe to be fairly representative. I refer to it here to indicate the remarkable gain that has been effected by the railroads in the past 12 years. The major credit belongs to the activities of the International Railway Fuel Association.

Enginemen have made creditable progress in acquiring knowledge in the use and handling of the various new devices with which the modern locomotive is equipped. It is the obligation and duty of the mechanical and fuel departments to assist the enginemen in their studies with instructions on the operation and adjustments of the different devices now in use, and which may be developed in the future. Where necessary instructions are lacking because of inadequate supervision, I am sure the managements of our railroads would readily authorize the needed help for that purpose.

Part of an address delivered, May 7, before the International Railway Fuel Association at Chicago.

A General View of the Yards at Springfield, Mo., Where the Frisco Conducts Its Enormous Reclamation Plants.

Making New Things Out of Old

A Story President Hoover Should Read

By C. W. Geiger and W. J. Parks

You will all remember, of course, and some of you with a smile, the astonished indignation of railroad men everywhere when a member of the Interstate Commerce Commission discovered one of the poverty-stricken short lines reclaiming old materials, and immediately announced his intention of having all the principal roads practice the same commendable thrift—not knowing that practically all of them had been doing it for years.

Reclamation of old materials and machinery, and the most expert energy in stopping waste of every kind originated in the Middle West, and spread like the foot-and-mouth disease. We are not going to run the risk of physical attack by saying here just which road started the thing, but we shall admit, fearlessly, that its headquarters are not a thousand miles from St. Louis.

Right now we are concerned in telling some interesting things in the reclamation line about several lines hoping there may be something in the story of value to you in your little corner. What, for example, do you think of this for economy? We were talking about waste a moment ago; the Southern Pacific, if our informant knows anything, and we think he does, has saved in one year $71,441.68 by reclaiming old waste. Standard plants for doing this work have been built by the company in several places, and there the men stop waste by saving it. All old waste, both cotton and wool, accumulated at the time of repacking journals, is placed in special metal covered containers, (built from scrap material) provided for the purpose, and shipped to the reclamation plant. Crates, boxes, etc. are not used as this would be a fire hazard. Care is taken not to let the waste lie in sand or dirt. No shop waste is reclaimed for journal packing on the Southern Pacific.

After the waste has been thoroughly forked over, all foreign substances removed, and the useless stuff thrown aside for burning, an operator pulls apart what is left, and puts it into an air-operated press where the old car oil is taken out. This press resembles a locomotive cylinder somewhat, and its plunger forces out the oil through perforations. This oil is used for oiling finished or semi-finished parts where the material is subjected to the weather, keeping the material from rusting. If more oil is obtained than is necessary for this purpose it is used in oiling switches and for keeping dust down on the road bed.

After the reclaimed waste has been thoroughly cleaned, carded, pulled apart by hand, and finally allowed to drain itself for five or six hours, it is put into containers, marked for what it is, and then

shipped wherever it is needed. New waste is never mixed with reclaimed stuff. Good reclaimed waste should not show more than 2.5 per cent ash when burned. Samples are examined frequently in the company laboratory to insure the right standard. A. S. McKelligon, general storekeeper for the Southern Pacific, has charge of all this waste reclamation.

The Great Northern Railway Company completed an investigation of its stationery and printing in 1926, resulting in a yearly saving of $55,000 at an expense of less than $5,000. Over 3,600 forms were investigated. Of this number 650 were consolidated and 1,980 revised, while 380 were found obsolete. This saving was accomplished by the means of a committee representing the operating, law, traffic, accounting and purchasing departments. This committee was appointed by the executive department with full power to act. The investigations were conducted in a fair and impartial spirit with no attempt to employ any dictatorial methods but a firm insistence to revise and reduce whenever the opportunity presented itself, allowing at all times the department interested to present its arguments for the retention of the old size or against a change in stock.

Copies of all forms were assembled and studied. A questionaire was formulated and mailed with a copy of the form, to the department having jurisdiction over it. This questionaire was very complete, requesting a brief history as to the origin and the purpose required. Queries followed in regard to a recommendation for continuation; willingness to continue it in effect for one year in order to purchase in larger quantities; duplication of reporting same information or other forms; a suggestion to consolidate with other reports; possibility of reducing size or stock and the elimination of colored inks or pages. A sample of a cheaper serviceable stock was attached.

Then there were questions in regard to how the form was made out, such as ink, pencil or typewriter; how many copies and how long it was necessary to retain it. The information obtained enabled the committee to determine the size, weight and quality of paper and whether the form could be reduced, consolidated or discontinued.

In addition to the saving mentioned others were made by gang or combination printing in the purchasing department. A proper record was kept showing how much of a saving was effected on each form, based on a year's supply. A fine spirit of cooperation was found in all departments as it afforded everyone an opportunity to make suggestions, and gave many departments a chance to effect many needful revisions that had been considered but never carried out.

Before sending out the questionaires the members of the committee notified the sub-departments under their immediate control by letter or circular. Meetings were held and the plan discussed. This method brought the matter to the direct attention of the traveling auditors, station inspectors, superintendents and storekeepers and got very good results.

An article was written in the employes' magazine inviting suggestions from everyone. In this manner all were acquainted with the desire of the committee when the questionaire was received. Small sample books showing the different kinds of paper, standard sizes and approximate costs were sent all departments.

In regard to stationery items. Savings were made by adopting fewer sizes of pens and rubber bands, steel for brass fasteners and pins, lighter weight binders where possible, powdered ink and mucilage, automatic pencils, longer yardage twines,

(Turn to Page 78)

Loading Scrap With a Powerful Magnet in the Springfield, Mo. Reclamation Yards of the St. Louis-San Francisco Ry.

YOU can increase your knowledge of Brill equipment by reading this interesting booklet. It lists a great many railroads that have reduced operating costs and describes the complete line of Brill Self-propelled Cars. Each type of car is illustrated. You can "get some place" with this "time table". A copy? Certainly. Address The J. G. Brill Company, Philadelphia.

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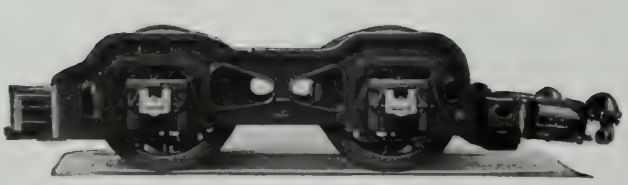

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Watch for Booster Locomotives on your trip to the A. R. A. meetings this month. See the loads they are hauling. If one is handling your train note the easy start and rapid acceleration to road speed.

Western roads, progressive in their attitude towards motive power, were among the first to make use of The Locomotive Booster. Today they use hundreds of Boosters to keep operating efficiency at a high pitch.

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Rail Motor Cars in the Making

Design, Application and Maintenance

By Charles O. Guernsey

THE USE of the internal combustion engine by the railroads has increased very largely during the past few years. Engines of all types and sizes are used for almost every conceivable purpose, from a small single cylinder, air-cooled engine on an inspection car, up to a 2660 h.p. Diesel engine driven locomotive. Probably the most important application of the internal combustion engine on the railroad lies in the field of the rail motor car.

The success of rail motor cars depends on the manufacturer, the mechanical department of the railroad, and the proper application of equipment to the service, which is usually in the hands of operating officials. These three classifications may be spoken of as design, application and maintenance.

The design is and properly should be the function of the manufacturer. By reason of the engineering, sales and servicing staff which he maintains, he is constantly in touch with rail motor equipment throughout the world and is in a position to profit from experience gained in all sorts of applications. Furthermore, since the manufacturer is selling his product to many different railroads to meet many different conditions he is compelled to spend large sums in development work far beyond what any given railroad might reasonably spend for the same sort of development. Also by reason of the time and care which the manufacturer can and does necessarily take in the development of new apparatus he is able to turn out a properly coordinated, well balanced unit, which would scarcely be possible for any railroad to do without undue expense, test and experimentation.

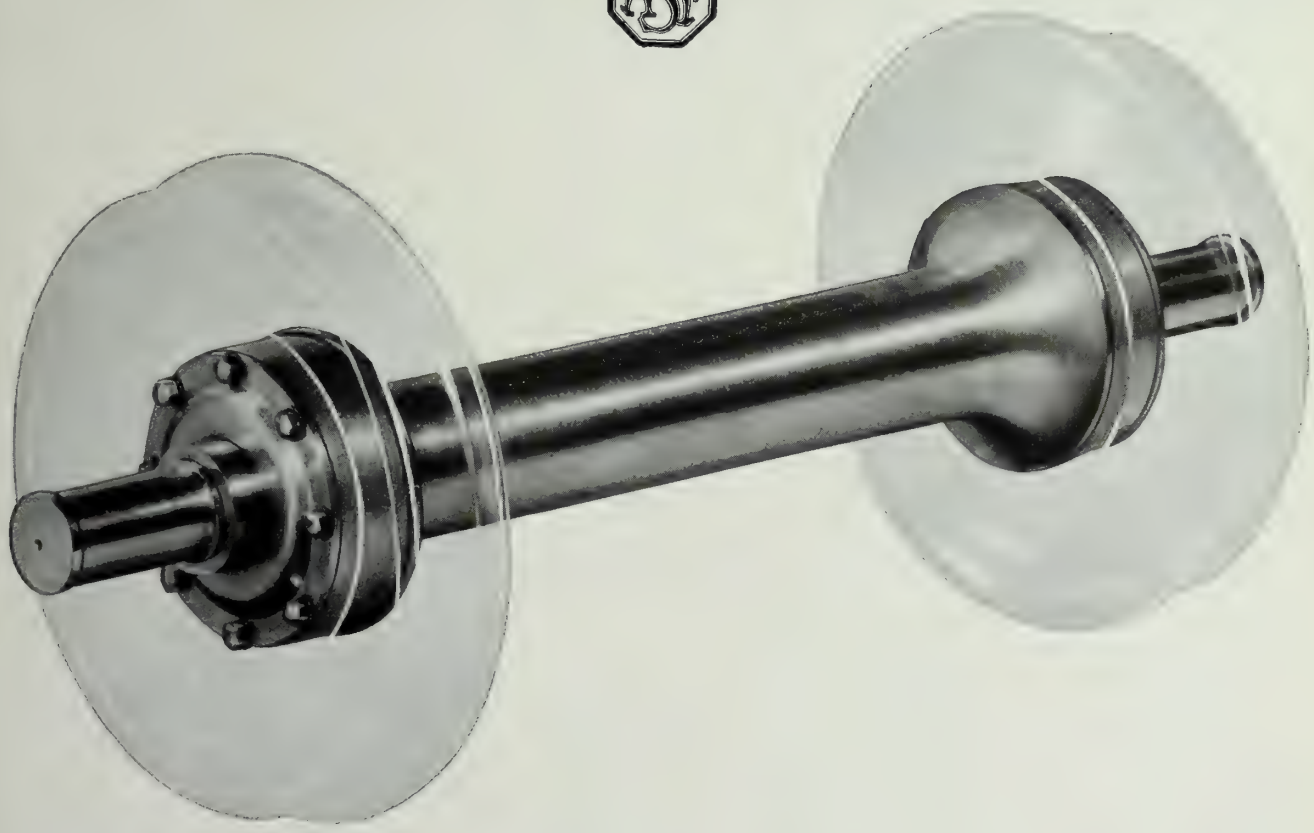
It is not necessary to say to a group of engineers that any mechanical equipment requires a certain amount of maintenance work. There are many cases of cars in service which have averaged 95 per cent availability over a period of several years, whereas other cars of identical design have had a far lower factor of availability primarily because of the difference in maintenance. In this field, the manufacturer attempts, by offering technical advice, by maintaining a proper field staff, and by the preparation of voluminous instruction books, to assist the mechanical departments of the railroads, but after all they can only assist. The burden of the job is and properly should be carried by the mechanical officials of the railroads. It is not the purpose to dwell on this phase at any length, but it does seem advisable to point out that on an internal combustion engine, and for that matter on the transmission equipment as well, if the proper thing is done at the proper time, maintenance expense can be kept surprisingly low, whereas if some minor adjustment is neglected, heavy expense may follow. In this respect this equipment differentiates rather widely from steam equipment. The steam engine can be operated inefficiently, it is true, but nevertheless without failure even though much needed repairs are postponed. If some very minor inspection functions on an internal combustion equipment are neglected, comparatively heavy repairs may be required, or if not, at least failure on the road will result.

Brill Double Power Plant Gas-Electric Car and Trailer, Built for the Lehigh Valley Railroad Company.

Obviously no one size or type of equipment will meet all varying conditions of service any more than a given type of steam locomotive meets all types of steam service. The equipment must continue to vary in size and in the relation between tractive effort on the one hand and speed on the other, depending upon the particular service in which it is to be used. It would naturally be very fine if a given railroad could standardize on one type and size of equipment, maintaining interchangeability of parts, etc., but that will not be possible if the equipment is to be used throughout the full field to which it is adapted. It is possible that some satisfactory classification may be worked out based on a combination of schedule speed and tonnage to be handled, so that the total number of classes can be held to the minimum. Any given class of equipment will, however, not operate economically outside its own classification any more than will a steam locomotive.

Part of a paper delivered before the meeting of the Milwaukee section of the society of Automotive Engineers in May. Mr. Guernsey is chief engineer, automotive car division, the J. G. Brill Co., Philadelphia.

American Steel Foundries Roller Bearing Unit



Wheels Easily Changed

The roller bearings are mounted within the ends of the axle housing.

With this construction the wheels are pressed on and off the axle housing without disturbing the bearing assembly.

AMERICAN STEEL FOUNDRIES

NEW YORK CHICAGO ST. LOUIS

Special 73′ Brill Gas-Electric Car for the Boston & Maine Railway.

This matter of classification obviously brings up the question of rating of equipment. With steam locomotives it is quite common to make classification on the basis of bore and stroke of cylinders, boiler pressure, height of drivers and weight on drivers. With this information a fairly definite picture of the performance ability of a steam locomotive is given. Unfortunately, the internal combustion engine cannot be rated on such an arbitrary basis.

The engines cannot be expected throughout their life to develop the very maximum of horsepower developed under laboratory conditions. It seems, therefore, that a service rating should be given these power plants somewhat below the power actually developed on test. I propose as a simple and workable means of rating that the engine be rated at a speed which the manufacturer is willing to guarantee for continuous duty, and that it be rated at 90 per cent of the actual power delivered on test when operating at that speed. Experience has demonstrated that carefully designed engines can be expected to maintain within 10 per cent of their maximum power when new, throughout their life, without an excessive amount of maintenance. This practice has been followed by the company with which I am associated, for the past several years, and has proved uniformly satisfactory; in fact, the average horsepower delivered, as tested from time to time in service, actually is somewhat in excess of the rating thus determined.

The conditions under which the engine works in a modern car with electric transmission, is in some respects ideal. The operating temperature can be maintained at the desired point within close limits. The engine is housed in the car body and can, in a modern car, be kept warm at all times, so that the question of starting with cold oil, which causes so much damage in automobile and industrial applications, can in practically all cases be avoided.

Lubricating oil can be cooled by an interchanger connected into the return pipe from the radiator to the engine and can thus be maintained at substantially uniform temperature. This oil temperature should be high enough to drive off diluents, but not high enough to cause oxidation. Very satisfactory results have been obtained where the oil temperature was maintained between approximately 150 and 170 degrees Fahrenheit. This condition follows automatically when the correct water jacket temperature of the engine is maintained, assuming that a heat interchanger, as mentioned, is used. This construction is deemed preferable to the use of an air cooled oil radiator for the reason that the temperature of the oil can be controlled within the above limits without additional apparatus for the operator to manipulate. The application is also ideal from the fact that the carburetor air intake is relatively clean. The service is less severe than in many other applications also because of the manner of support. Such vibrations as are encountered are less serious than is the case in industrial, motor truck or tractor applications. The application is also very desirable for the reason that the engine drives a generator, which in turn drives electric motors, thus giving an elastic connection between the engine and its ultimate load, with the obvious advantage of freedom from torsional shocks. The engine is required to operate at wide open throttle only at its designed speed.

These conditions are helpful in securing long and satisfactory operation of these engines between overhaul periods. In many respects, however, this service is extremely severe. The engines are expected to operate for long periods between overhauls. We have set as a goal 6,000 hours, which is equivalent to about 150,000 miles, or about two years' service. Many engines are now being operated as much as 120,000 miles between overhaul periods, and a considerable number for longer periods. They are and rightly should be for this service, operated at a comparatively high load factor. By comparison with other engines of similar size, such as marine engines, they operate at considerably higher water jacket temperature, and the cooling must, therefore, be extremely well worked out. They must be designed for long life. They must be so designed that minimum damage will be done by abuse, and so that they can be maintained at the minimum of expense. They should be capable of operating from 25,000 to 30,000 miles, or about 1,000 hours, between valve grindings.

Tough Bird, This

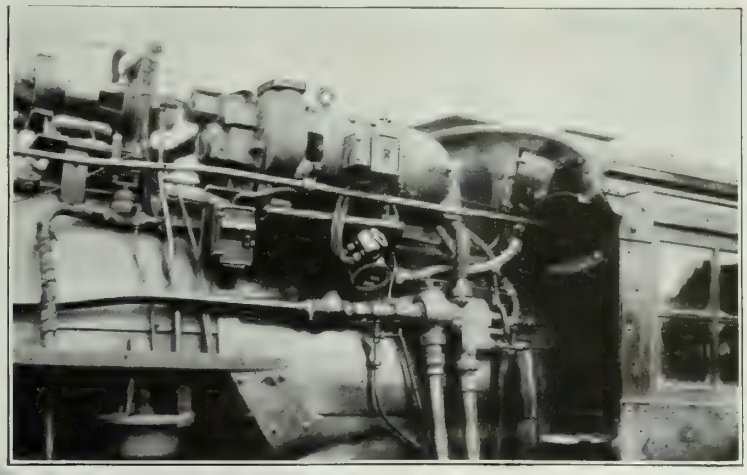
The Junkers airplane works at Dessau, Germany circulates a story to the effect that one of the regular air service planes between Cracow and Lemberg had been attacked by an eagle and its progress greatly impeded. The terrific swoops of the huge bird caused the plane to rock badly. The monarch of the air finally broke its neck on the all-metal wing of the plane. The wing was found to be deeply dented.

New Conveniences

For the especial convenience of business men who are accustomed to the "last word" in mechanical devices and aids to letter writing in their own offices, the Pennsylvania Railroad has adopted dictating machines as part of the special equipment of the "Broadway Limited," its 20-hour all-Pullman flyer between New York and Chicago. Two machines are carried on each section of the "Broadway" and they may be used at the option of the patron in the observation car, the club car, or the space occupied by the passenger.

Competent stenographers whose services are available to passengers without charge, have been members of blue ribbon train crews for many years. The use of dictating machines on the "Broadway," however, makes their assistance now available to larger number of persons who find it necessary to work while traveling.

Example is the school of mankind, and they will learn at no other.—*Burke.*



The compact, self-regulating Type "Q" 20 kw train lighting turbo-generator. Note that this unit is well within clearance limits.

Chicago, Milwaukee, St. Paul & Pacific R. R. Southwest Limited is lighted by Pyle-National turbo-generator on the locomotive

Better Lighting at Less Cost

for full length main line trains

with Pyle-National locomotive train lighting equipment

WITH a regular service load of 18 kw in this 9 car standard sleeper—dining car—observation consist, the remarkable voltage regulation of this system maintains brilliant, uniform lighting regardless of train stops—with lamp voltages within 2 volts of normal (64 volts). Battery auxiliary is automatically maintained in charged condition at the same time.

The dependable Type "Q" turbo-generator is a compact, efficient power plant, easily installed on the locomotive. It may be systematically maintained by the regular headlight maintainers already familiar with Pyle-National equipment design.

Dependable train lighting from this locomotive power plant is assured by the unified, complete system which includes special conduit fittings and wiring appliances proven by years of service.

Full description of this equipment and its advantages is available to you. Write the nearest branch office.

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When McCormick is in Conference

The Southern Pacific's Motive Power Head

By E. J. Whisler

One day while a Southern Pacific train was standing at a station, a passenger, pacing up and down the platform for exercise, observed some distance away, two men seated on a pile of crossties. One of them, apparently a laborer, dressed in soiled overalls, his face smudged and grimy, was talking with much emphasis and many gesticulations. The other man, in the garb of an office worker, sat quietly by, listening with thoughtful concentration, to what the speaker was saying; from time to time nodding in silent agreement, now interjecting a short comment, and again shaking his head in negation, but all the while his keen eyes fastened on the speaker.

"Who is that man?" the passenger asked the conductor.

"I don't know. Some foreman or car whacker, I guess," was the reply.

"No, no; I mean the other man."

"Oh, that's George McCormick, the general superintendent of motive power," said the conductor. "He's probably 'in conference,'" he added, with a chuckle.

And very likely he was right. George McCormick has held a great many more informal conferences out on the line with "The Men Who Do the Work" than he ever thought of holding in the dignified seclusion of his office.

Mr. McCormick is a born leader of men. An order is seldom given by him, and an arbitrary command never. He knows what he wants, and he knows how to get it, but the morale of his department is built up through admiration rather than fear. He was born with the knowledge that many men have to acquire, that you can lead a man much farther than you can drive him.

So Mr. McCormick "confers" with his office staff, he "confers" with his subordinates and, most of all, he "confers" with the workers in the machine shops and the foundries. He gets the point of view of the other fellow, and if the other fellow has something good to offer it is used, with full credit.

Meetings of heads of departments and workers are held regularly, presided over by Mr. McCormick, at which the workaday problems are taken up, discussed and ironed out, and new ideas and suggestions are welcomed.

George McCormick, General Supt. Motive Power, Southern Pacific.

Mr. McCormick was born at Columbus, Texas, and graduated from the Texas Agricultural and Mechanical College at the age of 19, with the degree of mechanical engineer. When we consider that at the time of his graduation it took considerably longer to acquire an education than it does now, it is evident that young McCormick must have spent a large part of his income for midnight oil. His ability as a leader was manifested early in life, beginning in his school days. His college was a military school, and shortly after entering there he was made captain of a cadet company. Upon graduation he was recommended to the war department for a commission in the army, his work as a drillmaster being highly recommended.

But young McCormick elected to make railroading his lifework, and upon leaving school entered the service of the Southern Pacific Company as an apprentice in its shops at San Antonio. He remained there for five years, and was then moved to Houston, where he stayed until made assistant superintendent at El Paso. During his service at San Antonio and Houston he served consecutively as draftsman, chief draftsman, mechanical engineer and master mechanic.

While he was at San Antonio he joined the state militia, and for some time served as captain of the Belknap Rifles. About this time the Spanish-American war broke out and McCormick crossed the seas as captain of the Houston Light Guards, Co. A, First Texas Volunteers. At the conclusion of the war, he returned to the Southern Pacific service but in 1900, when a tidal wave brought death and destruction to Galveston, his military services were again required, and he went to that point in command of a company of Texas militia to preserve order and assist in the rehabilitation of the city.

Mr. McCormick was advanced to the position of general superintendent of motive power of the Southern Pacific in 1916, and moved to San Francisco, where he has lived ever since.

Immediately upon taking up his new duties, McCormick's instinct for organization and leadership once more was demonstrated. Before that time, practically all of the railroad's motive power and rolling and floating equipment was purchased or built under contract. The enlargement of the railroad shops now began, and some cars were built by the company under McCormick's supervision. Today, a great deal of the rolling stock and many of its locomotives are built by the railroad itself, and this expansion is largely due to the quiet-voiced, thoughtful man who likes to go out on the line and talk the job over with his men wherever and whenever he finds them.

MODERN POWER

4-8-4 Type Locomotive—Denver & Rio Grande Western R. R.
W. J. O'Neill, General Mechanical Superintendent

This large and powerful locomotive is another advance in the progress of transportation. Men of foresight with a thorough knowledge of operating conditions, anticipating the ever-increasing demands, have given to transportation these locomotives, introducing new eras of more efficient transportation.

It is significant that HUNT-SPILLER AIR FURNACE GUN IRON was applied as a full installation to the cylinder and valve wearing parts of this locomotive to assist in developing full efficiency with dependable and economic performances.

Such an advance furnishes a sure foundation for continued advancement and progress in locomotive building.

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He Inherited His Railroad Urge

But McPartland Also Knows Baseball

By Tom Brown

Western Pacific Railway

To be a railroader is hereditary with M. B. McPartland, superintendent of motive power for the Western Pacific Railroad Co., at Sacramento. His father was assistant division superintendent for the Burlington. His father's three brothers also were in train service. Another hereditary possession of Mr. McPartland's is a predilection for baseball. It is said his father was a southpaw, and also a good catcher.

Mr. McPartland was born in Burlington, Iowa. He had a good secondary school education and at an early period determined that he would make mechanical engineering his life work. Now and then a man is fortunate to have determined early in life just what he wanted to do, and he is further fortunate in having the persistence to keep after his goal until attained.

So Mr. McPartland went to work in the railroad car shops of the C. B. & Q. at West Burlington, which is close to Burlington, Iowa. While in the railroad car shops he not only obtained practical experience but he obtained the money to put himself through Purdue University. While in Purdue University, in addition to majoring on his subject of mechanical engineering, he also majored on the baseball team, holding down first base on the university team. Also he played end on the Purdue 'varsity football team, Purdue then being in what was known as the "Big Nine." He was graduated from Purdue University in 1905, and went direct from his college classroom to the car shops at West Burlington, beginning at the bottom as a special apprentice and gaining before long promotion to the position of gang foreman. He went to the New York Central Railroad in 1907, becoming engineering assistant to the general mechanical engineer, and then erecting gang foreman at Albany, N. Y.

This experience was followed by two short periods of service under mechanical engineers for the Chicago, Rock Island & Pacific and for the Chicago & North Western. In 1910 Mr. McPartland went to Aguas Calientes, Mexico, as mechanical engineer for the National Railways of Mexico. While in this service Mr. McPartland laid out the drawings and plans, and otherwise functioned in the building of the first switch engine and, indeed, the first locomotive of any kind built on Mexican soil, for the National Railways. Following this service Mr. McPartland was with the Missouri Pacific for a brief period and then went to the American Car & Foundry Company of New York.

M. B. McPartland, Supt. Motive Power, Western Pacific Ry.

In 1911 he served with the Interborough Rapid Transit Company of New York and in 1913 went to the Rock Island, where he was, first, general foreman and then master mechanic. He went with the Colorado Midland in May, 1917, with headquarters at Colorado Springs, and in September, 1917, took the position of master mechanic and later that of superintendent of motive power with the Denver & Salt Lake Railway—the Moffat Road. Three years later Mr. McPartland went to Cuba to enter the employ of the Cuba Railroad as superintendent of motive power.

In March, 1929, Mr. McPartland returned to the states for a few months' service with the Moffat Road, and in November, 1921, he came west to enter the service of the Western Pacific as superintendent of motive power, with headquarters at Sacramento. This position Mr. McPartland holds today.

It must be recorded here that Mr. McPartland contributed nothing to this survey except these lines:

"We are very busy at present trying to complete a large improvement program begun in the early part of 1927 and calculated to be completed in 1932. This program involves the reconstruction of several thousand box cars and gondola cars and a considerable number of flat and stock cars. We are just now completing negotiations with the builders for the construction of some automobile, tank and flat cars and some new Mikado locomotives, all of which are to be delivered to us during June. Like all other railroads, we are constantly providing ourselves with additional shop machinery and tools to enable us more efficiently to accomplish repairs to locomotives and cars and, due to our ability to keep abreast of the times in this respect, we are looking forward to the accomplishment of repairs to the largest number of units of equipment in 1929 that has ever been attempted on the Western Pacific."

Red and Yellow Don't Harmonize

Working on the railroad can never be the same again—the red flannel shirt has been ostracized.

By official order of the Chicago, Milwaukee, St. Paul & Pacific, this venerable emblem of the section hand's art has been consigned to oblivion, along with the mustache cup, peg top trousers and three handed euchre.

Because of the possibility of being mistaken for signals, the road's order reads, "wearing of red clothing about the right of way is forbidden."

Adding A New Decorative Charm And Luxury To Travel

The atmosphere of comfort and beauty which is characteristic of the American home, is now being expressed in railway coaches through upholstery of Chase VELMO. It is to these regal pile "mohairs" that designers turn when the problem of *practical luxury* is to be solved . . . plushes of enduring charm . . . high-styled and decorative . . . or in blending neutral tone-effects for use where simplicity is paramount.

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Showing Velmo Upholstery in Observation Car
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Consultant On Upholstery Problems At Your Service

The spirit of decoration and utility has been obtained through the medium of Chase plushes better than with any other fabric. And to assist further, we now offer you the services of an experienced and recognized stylist who would be glad to suggest or co-operate in shaping up your original ideas . . . if you desire.

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Velmo Upholstery in the "Blue Comet" DeLuxe Coaches
.....Central Railroad Co., N.J. .....

Editorial Comment

THIS MONTH in the AIR and along the RAIL

By Harold Smith

Aviation Developments
Erie Changes
Obsolescence
Secondary Power
Electrification
Safety First
Coordinated Transportation

May has been crowded to the guards with events of major importance and interest to the transportation world. Two events seem of extraordinary interest: The changes in the personnel on the Erie and new developments in aviation.

Lindbergh got married. Two civilian aviators in Texas set a new world mark for sustained flight, and with a second-hand motor. Fahy broke the world's record for a sustained solo flight. Progress in commercial aviation was marked by announcement of the definite route to be followed in the air-rail service from New York to Los Angeles, starting July 8, and the locating of 83 weather observation stations established to make this trip absolutely safe. Any indications of unfavorable weather ahead, down comes the plane, and the journey will be continued by steam (the old reliable all-weather service). "Lindy" is quoted as saying that "piloting one of these planes will be about as romantic and exciting as driving an ice wagon"; that's the kind of service we need to bring aviation to its greatest economic value.

Competition is keen these days; no one waits. The Western Air Express, which has been operating passenger planes successfully for a long time on the Pacific Coast, has announced a new transcontinental service with a rail hookup to start at once, as outlined elsewhere in this issue. Kansas City to Los Angeles in 13 hours!

Many recent events make whoopee for California; several air-rail lines for fast service to all points in the east; another trunk line fighting to get into the state.

Telegrams were received May 24 and 28 from the Erie Railroad about the changes in personnel, as announced in another article in this issue. Just the change alone is significant; the telegrams tell another story. They are an optimistic greeting to the world, full of enthusiasm; a new spirit on the old Erie, a few years ago the brunt of every burlesque actor's humor. An enthusiasm built from results. These men, the Van Sweringens, Bernet, Denney, and their organization have not only pulled the Erie up by its bootstraps in an incredibly short time, but have also established a new *esprit de corps* and enthusiasm.

Think of these figures: In 1928, the Erie showed a net income of $10,002,884 which, after the sinking fund deductions, yielded a profit and loss credit of $8,614,792. This represents an increase of $6,490,234 over the net for 1927, and $6,481,029 increase in the profit and loss credit. But this increase of more than six million in income was accomplished with an increase of less than two and a half million in the gross revenues. For January and February, this year, the net operating income was $2,769,800, more than double the amount for the same period of last year. In February the Erie showed an increase over the same month in 1928 of only 344 train miles yet the road performed 210,984,000 more gross ton miles which yielded 120,700,000 more net ton miles than February, 1928, and still the pounds of coal per 1000 gross ton miles decreased.

Of course, many factors contributed to the result, but foremost of these is the $85,000,000 rehabilitation and reconstruction program undertaken by the road. When results such as these are secured the wisdom of the expenditures can not be questioned.

Obsolescence-minded might well be added to the next edition of Webster's popular reference work, with this definition: One who is broadminded enough to limit the life of equipment to its productive capacity based on advancement in the industry and its ability to earn a maximum return in the service in which it is employed.

Mr. Bernet, in a modest statement published in Transportation in January said, "Our net, through operating and other economies made effective, shows a very agreeable result. With the addition of new motive power and equipment these results should show more strikingly during 1929."

The Erie's program of retiring many obsolete engines and replacing them with modern power is playing an important part in the net return.

Several articles appeared during May in leading magazines on obsolescence; it's a live topic today. The department of commerce is making a survey to see how far obsolescence affects our industries.

Why not a survey of your motive power and the use to which it is being put? Locomotive design is advancing so rapidly that many engines only five years old are not economical in the service in which they are employed.

The Wall Street Journal recently said, "The steam locomotive itself has undergone a virtual transformation in respect to unit power and efficiency during little more than a decade, constantly shifting the economic relation between steam and electric traction. Further development of steam motive power, particularly in freight service, may be just around the corner."

That word, decade, is conservative and it sure isn't a circumstance to what is just around the corner. Look at a few of the locomotives built this year: the Northern Pacific's giant freight engine, the Delaware & Hudson's 652, and many others, all new designs. The Canadian Pacific is building a double-pressure steam locomotive at its Angus shops, and the New York Central is having one built by the American Locomotive Company. A saving of 20 per cent in fuel is expected.

A survey will not only show that most of your main line heavy freight engines will be obsolete in ten years,

but will also develop some interesting facts about secondary power. W. E. Woodard, vice president of the Lima Locomotive Works, in an address before the New England Railroad Club on April 9, pointed out the possibilities of improving operating conditions and effecting large economies by replacing old engines used in secondary service with new modern light-wheel-load locomotives capable of producing power output at speed economically. A check-up of two large railroad systems, he said, showed that on one 33 per cent of the road's power was employed in secondary service, that the average age of the engines used in this service was 21 years, and that they consisted of eleven types. On the other road they represented 30.6 per cent of the power and the average age was 19.7 years.

Here is a chance to save some money—standardize this type of engine, and reduce your maintenance costs, coal consumption and the number of units necessary.

A bill has been introduced in the Illinois legislature to prohibit the operation of railroads in cities of over 500,000 population by any power except electricity after January 1, 1932. The Illinois Commerce Commission, if necessary, may extend the time but not for a longer period than five years from January 1, 1930.

It is said that this bill, if enacted, would involve the electrification of 7,726 miles of track, and an expenditure of over one billion dollars.

This is an inventive era in transportation. Progress in invention is moving rapidly. Who knows what five years will bring forth, the Diesel engine, the smokeless locomotive, the engineless airplane, the trackless railroad? Inventions and developments in electricity are likely to make this investment of over a billion dollars obsolete before the undertaking is completed. The time seems scarcely opportune for this.

Railroad executives are alive today to progress, eager to give the public the best transportation possible, notwithstanding the decreasing revenues from passenger service. Air rights may prove sufficiently valuable in a few years to warrant such a program, but an enforced expenditure as great as this under existing conditions is likely to prove a colossal failure, particularly in its effects on some of the smaller roads.

Figures from 37 states estimate that 27,500 persons were in motor vehicle accidents during 1928, and that one person was killed for each 900 automobiles registered, a rather heavy toll.

Total fatalities to passengers on steam railroad trains in 1928 were 16. One fatality as a result of a train accident out of every 49 million who boarded a train, the result of organized safety work.

In keeping with the trend of the times, for speed, announcements galore were made in May reducing the running time of passenger trains between important business centers. Train schedules between Chicago and California were cut to 58 hours and reduced approximately six hours to the Northwest. The running time between Chicago and Denver was reduced one hour and thirty-five minutes, and some of the eastern lines announced faster schedules for certain trains.

Every month brings improvement in passenger train service, both in equipment to create greater comfort, better dining car service, and faster schedules. But lower revenues.

General W. W. Atterbury, in an address on May 16, said, "Give the public what it wants. We on the Pennsylvania have embarked on a comprehensive program to link up motor bus, motor truck and airplane transportation with our railroad train service. The word 'railroad' no longer is adequate to describe the transportation service which up-to-date railroads now offer to the public. We are no longer railroads alone; we are transportation companies."

"Transportation in Its Several Present-day Phases," was the subject chosen for the annual banquet of the Chicago Railway Equipment Company in Chicago recently. Mr. Leigh, on that occasion, said, "It is believed that our railroad friends have a serious problem in the present-day development of the highway, the airway and the waterway; and the question may at least be raised as to how they may be able to coordinate these several modes of transportation to cooperate with them, or even to operate them." He further said that the suggestion has been made to change the name of "Railway" supply business to "Transportation" supply business.

Surely that's in keeping with the trend of the times. Why not change the name of the Railway Business Association to the Transportation Business Association? More than two years ago this publication was organized with the name "Transportation," because we believed that the future welfare of this country would require a coordinated transportation service; and that such a service could be developed only through the steam railroads. A publication can grow only when it serves a definite purpose. It must be a leader in its field. It must assist in crystallizing opinion so as to advance the industry it serves and the men employed in it.

And, by the way, this is the largest issue of Transportation since its beginning, a little more than two years ago.

Congratulations for George

A much-loved Jewish humanitarian said, one day during the World War, that few persons are competent to handle large sums of money received unexpectedly. His words come to mind in reading the news that after three years' arbitration the Pullman porters of the country are to have an increase in their wages—five dollars a month. This unexpected wind-fall may do much harm. Used sensibly, after mature deliberation with wise counsel, it may mean great things for the faithful negroes of the sleepers. Five dollars is the interest on quite a loan, if someone can be induced to make it, but in a crap game it will last about as long as a snow-ball in Florida. Saved for ten years this increase will provide the down-payment on a house and lot. The possibilities of five dollars a month are almost limitless. Sixty dollars a year is enough for a fairly good suit of clothes. Also, it will pretty nearly pay for the towels and sheets and pillow-slips charged to the porters, little things that somehow will force their way into travelers' suitcases.

The Court Below

The decision of the United States Supreme Court in the O'Fallon valuation case gives this department particular gratificatoin. It increases the veneration in which we have always held the wise members of that dignified

Staybolts, the vital elements in sound boiler construction are subjected to constant strain from vibration, contraction and expansion, besides the added stress inseparable from working under load and pressure. To meet these exacting requirements the use of

Tennessee Charcoal Bloom Iron

for staybolts—an especially manufactured, proven material—insures long service life, with the minimum of replacements and renewals.

"In Use Since 1844"

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CHICAGO NEW YORK ST. PAUL

body because the result of their judicial consideration is precisely what we expected, directly in line with the conclusions for which this magazine has contended ever since it was founded.

A study of the files discloses that, while admitting the average ignorance of law, this department has consistently drawn attention to the fact that the sacred Constitution and the decisions of the Supreme Court in public utility cases were available to all, and that no fair-minded man of intelligence could argue successfully that railroad property was not entitled to as much protection against confiscation as any other property used in the public interest. This attitude was asserted in our first issue in May, 1927, and from that day forward we have opposed the Interstate Commerce Commission's method of making valuations as energetically as we have continued to insist that this body never has, for one moment, obeyed the plain mandates of the Transportation Act of 1920 with respect to making rates high enough to enable the railroads as a whole to earn the fair return which the commission itself set down as reasonable—5¾ per cent.

We have insisted, from our first issue, that the country is using, without just compensation, a transportation system it can not afford, whose replacement value is so great that the commission dare not authorize rates high enough to assure a fair net return to the owners under a legal method of valuation. Wherefore it used a method which the highest court in the land has condemned.

Just one thing more remains to be done: Repeal the Recapture Clause, the most un-American enactment ever imposed upon one industry—class legislation—Socialism legalized. The Supreme Court upheld that clause in the Transportation Act, and we enjoy the inalienable right of saying we believe the court was wrong. We shall not be greatly astonished to see the court reverse itself some day if congress does not; meanwhile, wipe the law off the statutes.

O, Mr. Johnston

C. E. Johnston, president of the Kansas City Southern, says in a recent advertisement that the cost of mailing a letter will pay the freight on a woman's dress from New York to Kansas City. Mr. Johnston is quite a humorist. But what he intended to say, doubtless, was that a woman's dress nowdays can be sent anywhere in a letter for two cents.

Can You Solve This?

Government-operated railways in Brazil recorded a deficit in 1928 of $1,020,000. The Central of Brazil, privately owned, had a surplus of $216.000 in the same period. The first paid no taxes or interest. The second did both. A new Falcon pen-point and a pad of yellow or blue scratch paper will be awarded the person giving the most plausible reason for this difference in results.

Economics and Rates

If foreign wheat-growing countries have good crops, and are, therefore, well supplied; if American farmers have a carry-over of 400,000,000 bushels, and another big crop is coming on before this immense visible supply has been taken out of the country; if, indeed, there is so much wheat on hand everywhere that the price has fallen lower than it has been for years, will a reduction of grain rates by railroads create a larger demand anywhere and increase the price of wheat? Can the Hoch-Smith Resolution, the wonder-working legislation of the age, relieve the harassed farmers? This seems to be the economics of Senator Capper of Kansas who demands that the rates be cut.

Isn't It Wonderful?

Every little while we encounter some pleasant circumstance that gives us new confidence in the strangest thing in the world: Man. Out of the gloom created by procrastinators, some genial soul does what he is asked to do, and what under all proper conditions he ought to do, and the day is made brighter, labor is lightened and all is well.

This little excursion into philosophy is created by a most unusual happening. The superintendent of one of the largest railroad shops in the western half of America, learning that train-loads of delegates to the convention of Division V at Los Angeles, this month, would visit the property in his charge prepared a little booklet, illustrated with views of the principal parts of the big plant, and in the text told everything a mechanical man might wish to know. This booklet he had distributed to his guests as a souvenir. Such intelligent forethought deserves special commendation in a world where such things are altogether too infrequent.

One outstanding fact remains to be told, something so uncanny that few persons will believe it: This man had large photographs taken showing the shops' departments, and as if this were not proof enough that he understands his business, he wrote captions on the backs telling what the pictures were about. Superintendent Barton at Albuquerque certainly wins the fur-lined bath-tub.

By the Way

Aviation has done much for the world during its short career. For one thing, and this is important, if it hadn't been for aviation we might have died, after a while, without ever having heard of Waynoka. How astonished the people down there must be to find themselves on the map.

The public relations department of the Frisco System seems to be under the unusual impression that what the public really needs and actually wants is accurate and interesting information. At least this is the reaction to a little circular received recently telling a few things of current value. Practically all railroads have such information hidden away somewhere, but it rarely reaches the public. Occasionally a Rotary or a Kiwanis Club hears the facts after the first verse of the national anthem has been sung; the playground committee made its report; 233 visitors introduced, and a few special announcements made—that is to say, the members get the facts if the railroad speaker can tell them in 13 minutes. If he can't, the members trail out to their offices.

A recent example of Rotary courtesy was seen in Los Angeles when C. D. Morris, assistant to the chairman of the Western Railways Committee on Public Relations, had been invited to speak. Mr. Morris had come from Chicago to deliver his address on the public's responsibility for railroad conditions, and its interest in having them improved. By the time the club's toastmaster, the principal speaker as it proved, had disposed of all the customary luncheon club absurdities; after a popular

This One Thing We Do

It is no accident that Roberts and Schaefer Company's Locomotive Coaling Plants command the confidence of the largest and best Railroads in America. Their experience JUSTIFIES that confidence.

Supporting such experience moreover is our famous slogan, "Fulfill the Contract—Satisfy the Client," and our willingness to allow the Railroad to write their own guarantee of satisfactory operation. But still farther back —behind the satisfaction of users and behind our assurance—there stands:

Twenty-five years of fine engineering and construction tradition.

Pride in our work that scorns compromising with mediocrity to cheapen cost.

Proficiency—produced by sticking to our last—the doing of one thing and the doing of that thing supremely well.

That is the background of Roberts and Schaefer Company's Railroad Coaling and Cinder Plants.

Our Coaling Station Bucket Loaders. Most Dependable Available to Railroads.

ROBERTS AND SCHAEFER CO.
ENGINEERS AND CONTRACTORS
CHICAGO, U.S.A.

singer had given several numbers; after visitors from almost every state in the Union had been introduced—there were more than 65 of them—Mr. Morris was presented. He had about 18 minutes for his address on a subject in which every member of the club had a very real interest, whether he knew it or not. It is indeed true that some seeds fall on stony soil.

A correspondent on the firing line in the most recent monthly Mexican revolution, believes he has discovered something. No big mining camp, he says, ever has been so successful in settling labor troubles as has that at Bisbee, Arizona, which is a bullet's throw across the line. There are no unions at Bisbee mines. No walking delegates. Many miners are on pensions after long service. Working miners, the writer says, have a kind of congress of their own with a house of representatives and a senate. Various business men of the town sit with them in the deliberation of their affairs.

The wage rate takes care of itself—dependent on the price of copper. Just now copper ore is about like diamonds; and the companies voluntarily have given all the miners a 20 per cent rise in pay.

"The railroads were among the first newspaper advertisers and they have been using space for information and persuasion pretty persistently ever since," said L. A. Downs, president of the Illinois Central, in addressing the International Association of Newspaper Advertising Executives in Chicago, May 15.

"No man can successfully engage in any kind of business today without a realization—indeed, a real appreciation—of the tremendous power of advertising," Mr. Downs said. "To put it in the plain language of my calling, advertising is the motive power which pulls the gigantic train of modern business."

And Your Complainants Will Ever Pray

In the April issue of Transportation we said: "There are few men in railroad service today who do not admit the practical need, the economic possibilities, and the safety features of automatically connecting the air and steam lines between cars. Yet probably less has been done by the railroads as a whole to cooperate in the testing and developing of connectors than of any other device. Railroad managements have seemed to believe that in the case of the connector they should demand at the start an absolutely perfect product, and have set up theoretical objections to all connectors, objections whose value could be proved only by years of service. At the same time they withheld from the manufacturers the opportunity to place connectors in service. Had the same attitude been adopted toward the automatic coupler, the air brake and other devices it is doubtful whether these life savers ever would have reached their present stage of perfection."

On May 3, the American Railway Association filed a reply to the complaint of the brotherhoods to the I.C.C., in which they had asked the commission to require the railroads to equip all cars with automatic hose-pipe connectors within a period of five years so as to make it unnecessary for the men to go between or under the cars when connecting trains.

In its reply the association says: "It is conceded that if a practical train-pipes connector, functioning properly, was applied to all cars it would not be necessary for men to go between the cars to couple air, steam and signal lines; but, as stated, no such automatic connector has been found which will operate properly under any and all operating and climatic conditions."

They further state that the association has made intensive studies of existing connectors, but, on the other hand, state that they will now undertake a thorough investigation and make adequate tests of connectors to determine their practicability and serviceability in providing greater safety and promoting economy of operation. The reply also says: "The patentees, realizing that their designs were defective, have from time to time made changes * * * * in the effort to remedy the defects which have appeared."

Here we get all the old time story again demanding a perfect device before they give it consideration, and still not willing to cooperate in its development until compelled to. The connector is not new, various types have been in use for many years—yet the reply refers to intensive studies only, and by declaring the willingness of the roads to now make adequate tests forms an admission in itself of former delinquency and disinterest. To condemn one for changing the design of his product in an effort to better it is archaic.

"Nature knows no pause in progress and development, and attaches her curse on all inaction."—*Goethe.*

Wonders of Government

Just when congress authorized the Interstate Commerce Commission to define the standard time zones of the nation is not known in this department. A search through the laws which that over-burdened body tries to enforce fails to disclose any enactment covering the point. But there always is a bare chance, among the musty tomes, that something has been missed. Any way, the commission issued an order in October, 1918, defining the boundary line between the U. S. central standard time zone and the mountain time zone in North Dakota. Now, eleven years later, it is discovered that a little piece of South Dakota has been in that central time zone, or maybe it was mountain time; one seldom can be absolutely certain about the commission's orders. To make it still more confusing, the legislature of South Dakota, without asking the commission's approval, has deliberately decreed that beginning July 1, standard central time shall be the official time in that state. The commission, still groggy over the O'Fallon knock-out, issued another order, May 18, calling for a conference with the state officials of North Dakota to see what shall be done about it. Meanwhile South Dakota sets its Ingersolls as it wishes.

The volume of rail transportation in the United States has increased more than 200 per cent in the last quarter of a century, according to the United States department of commerce. This compares with an increase of approximately 55 per cent in the output of farm products; 280 per cent in the output of minerals (mainly due to the large expansion in pertoleum production); and about 180 per cent in factory output.

"These remarkable figures compare with an addition of about 55 per cent to the population of the country," the department states. "It is obvious that there is produced for each person in the population a far greater volume of goods and services than at the beginning of the century, which means, of course, a great advance in living standards."

MOST OF THIS CAN BE AVOIDED

I. C. C. REPORT

71 KILLED—625 INJURED

By coming in contact with fixed structures above or at the side of the track.

AND AT THE SAME TIME

Almost your entire replacement and

MAINTENANCE COSTS ELIMINATED

for bridge and tunnel warnings.

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Tell-Tales
Tell-Tale Hangers
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SAVE LIFE

and damage claims and prevent tangled, bent or missing tell-tales—They are permanent. No need any more for 3 men and a dangerous ladder—one man from the ground replaces a tell-tale when necessary.

HASCO devices are standard on leading railroads — if not on yours for our mutual benefit write for details to

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Charles Denney Heads the Erie

J. J. Bernet to the C & O

By P. H. Rowels

J. J. Bernet

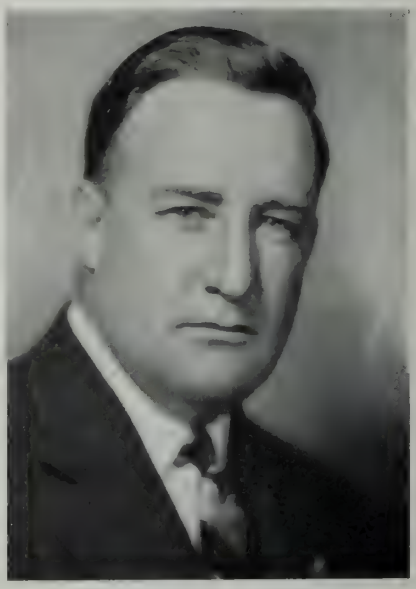
A SWEEPING rearrangement of official heads on the Erie and the Chesapeake & Ohio, in the Van Sweringen group of railroads, was recorded in the closing days of May when J. J. Bernet, president of the first named line, resigned to take the presidency of the second road and of the Pere Marquette. Charles E. Denney, vice president of the Erie, was elevated to Bernet's place; W. J. Harahan, president of the Chesapeake & Ohio, receded to the senior vice presidency of that road, and Robert E. Woodruff, assistant vice president of the Erie, was promoted to vice president in charge of operation succeeding Mr. Denney.

All these changes, it is understood authoritatively, have been made so that Mr. Bernet may head what is called the main stem of a new eastern consolidated system, a task to which it is desired he may give his whole attention, while at the same time acting in the capacity of chief railroad advisor for the brothers Van Sweringen.

Charles E. Denney, who succeeds John J. Bernet as president of the Erie Railroad, couldn't earn enough money to pay his way through college but nevertheless became the president of a great American railroad system before he was 50 years old. Denney grew up in Lancaster, Pa., but he was born in Washington, D.C. because his mother happened to be there at the time, which seems to be a perfectly valid alibi. His father was a master mechanic in a watch factory, so possibly Denney inherited some of his mechanical instincts from him, although there is a vast difference between watches and locomotives—still, both have to run and run right.

However, this latest recruit to the list of railroad presidents was just a regular boy, a son of parents in ordinary circumstances, who did odd jobs around town, peddled papers, and saved his money with an eye to going to State College near his home. He did manage to get three years of the higher education. He remarks, now that it is all over, that the greatest success he had in those days was as a solicitor for business for the boarding house where he lived while going to college. Denney kept his meals coming in by getting new boarders. But eventually that gave out, and when he was one year away from receiving a sheepskin which would have identified him as a full-fledged mechanical engineer, he decided not to struggle any longer, and got a job with the Union Switch & Signal Company at Rochester, N. Y., where he had been having some odd jobs during vacation time while he was at school.

The Lake Shore & Michigan Southern, (now the New York Central main line between Buffalo and Chicago), was installing signal devices in 1905, and wanted to hire a smart young fellow as a helper. Denney landed the job, and in a little time was a special signal engineer attached to the office of the vice president in charge of operation. For a short time he returned to the Union Switch & Signal Co., but in 1916, when John J. Bernet joined the Van Sweringens and became president of the Nickel Plate, Denney got a job there, soon becoming assistant to Bernet. He rose rapidly, was assistant federal manager of the railroad during government control, and then, from 1920 to 1927 he was vice president and general manager.



Charles E. Denney

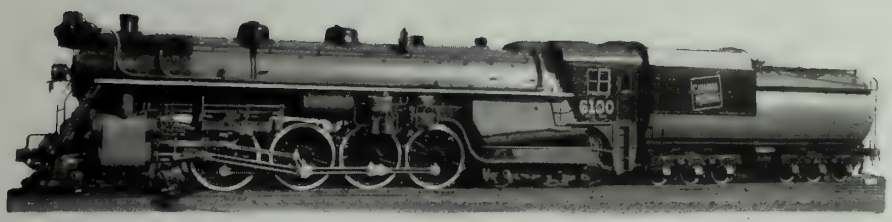
In the meantime his old chief had become president of the Erie. In the job of rehabilitating and reconstructing that historic railroad, Bernet wanted a vice president in charge of operation and maintenance. He brought Denney from the Nickel Plate, and he made such an outstanding success of his part of a really big job, that when the Van Sweringens decided they needed Bernet at the head of the Chesapeake & Ohio, because it is the main stem of the great eastern trunk line system they are working to build, they selected Mr. Denney to take over the responsibilities Bernet was giving up.

The new president of the Erie is a prodigious worker, and fortunately is physically equipped to stand it. He stands more than six feet in his stocking feet and weighs over 200 pounds. He is married, lives in Montclair, N. J., and is well known among railroad men. His fellow railroad executives recently signified their respect for his ability and their confidence in him, when they elected him chairman of the operating division of the American Railway Association.

This advertisement is one of a series showing

SYPHON EQUIPPED

MODERN SUPER POWER UNITS



Circulation ~ Safety
Fuel Economy
Reduced Boiler Maintenance

LOCOMOTIVE FIREBOX COMPANY
MONTREAL CHICAGO NEW YORK

This is One of the Handsome Coaches Used in the Blue Comet, the New Train De Luxe Now Giving Thoroughly Modern Service on the Central of New Jersey Between New York and Atlantic City. Everything About This Train, Except the Passengers, is Blue.

The Blue Comet, a Gay Affair

One of the niftiest passenger trains in the eastern end of the continent is the Blue Comet, which went into commission on the Central of New Jersey early in the spring. An interior of one of the handsome coaches, with individual seats, is shown here.

The entire train is painted in what is called Packard blue, including the locomotive, and this color with Jersey cream and royal blue, has been applied with harmonizing effects inside and out.

The Blue Comet is a daily de luxe coach train running between New York and Atlantic City, and the distance, 136 miles, is covered in two hours and 48 minutes.

Direct Steaming Plant At Interbay, Wash.

The Great Northern Railway has about completed a new engine terminal at Interbay, Washington. The enginehouse, which is erected on filled-in ground on piles, has four sections of six stalls each. It is a brick structure with extensive areas of steel sash and equipped with fourfold doors. The stalls are 116 ft. long, and the pits 90 ft. long. A special feature incorporated in the engine house is the Railway Engineering Equipment Company's direct steam system for firing-up engines. With this method steam from the stationary boilers in the power house is admitted into the boiler of the locomotive which has previously been filled with hot water from the boiler washing system. The actual firing-up operation of the locomotive takes place out of doors. Smoke jacks, which usually are placed over each pit, have been omitted owing to the installation of this firing-up system. Steam blowers have been installed for use when performing hot work on boilers.

Ordinarily, the heating of an enginehouse presents a problem, and sometimes quite an expensive one, especially where hot air heating equipment with underground ducts is installed. Such an arrangement may cost from $40,000 to $60,000. Direct steaming makes this outlay unnecessary at the Interbay Terminal. With such a system a comfortable temperature can be maintained by radiation from locomotives standing under steam supplied by the power plant.

A machine shop of brick, 90 ft. by 177 ft. is attached to and opens into the enginehouse. A blacksmith shop 37 ft. by 38 ft. and a small tool room are enclosed within this shop. A track in the first stall of the enginehouse extends into the machine shop for the handling of classified repairs. This track is provided with two driver drop-pits; one in the shop and the other in the enginehouse. Three tracks in the enginehouse are served with driver pits and two with engine and tender truck drop pits. The equipment in the machine shop is a very complete layout of machinery for performing all the classes of repair work to be handled at the terminal. A 5-ton crane having a 48 ft. span operates along one side of the building.

The power house, consisting of a boiler room and pump room, is of brick, 41 ft. by 52 ft. Two Babcock and Wilcox Sterling type water tube boilers have been installed with room for an additional one. Boilers are rated at 250 horsepower each and will carry a working pressure of 225 lbs. Oil will be used for fuel. At one end of the power house a Miller boiler washing system has been installed. The washout and refill tanks, of steel, are completely covered with insulation as they are not enclosed within a building.

The storehouse is a frame building 40 ft. by 122 ft. and is equipped with oil handling facilities.

A 24-Stall Enginehouse at Interbay, Wash., with One Stack—the Big One.

FORGET THE WEATHER!

Don't load your power for a wet day or a "bad rail".

Instead, equip your power with Graham-White Sanders and load to capacity.

GRAHAM-WHITE SANDERS

are ***automatically self-cleaning*** and ***insure*** traction under all conditions of rail or weather.

"PERFECTLY SIMPLE, SIMPLY PERFECT"

GRAHAM-WHITE SANDERS quickly return their first cost in the savings effected in sand, labor and repair parts while they increase, in a marked degree, the efficiency of a power unit.

GRAHAM-WHITE SANDER CORPORATION

ROANOKE, VIRGINIA

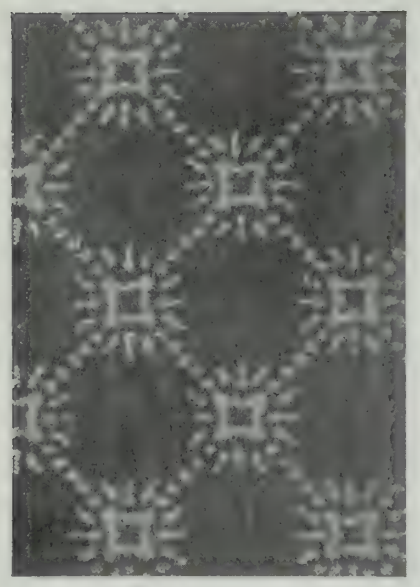
T-Z Railway Equipment Co.
14 E. Jackson Blvd., Chicago

Charles H. Quinn
681 Market St., San Francisco

Cars and the Comforts of Home

Luxury Unknown A Few Years Ago

By James Harper Lee



A Sturdy Frieze Mohair in Modern Pattern and Color.

THE HANDSOME lounge cars put into commission last month by the Rock Island Lines on the Rocky Mountain Limited between Chicago and Denver, bring to mind a contrast between the comforts and luxuries the public now has in traveling, and the harsher, harder facilities known to men and women still young when they moved across the land. Several of the principal roads have gone in rather lavishly of recent years for these products of the most competent artisans. Some of the finest cars of 50 years ago were pretty ornate, but they were hulks of discomfort compared to the beautiful products of 1929.

These Rock Island lounge cars have 84-foot bodies, typical of the Pullman built-up examples, with cast steel buffers. Ready for the road they weigh a little more than 83 tons. The Pullman Car & Mfg. Corpn., built them, and as might be expected, they have everything the worst grouch in America could demand, especially if he be an artistic grouch. The harmony of colors is extremely pleasing. In one end of the cars is a sun room, 7 ft. 3 inches, with six wicker chairs upholstered in green and gold. Shadow print cretonne with green background is used for the window draperies. Green and white marbelized rubber tiling covers the floor, with a rug in perfect harmony throughout the rest of the car.

The observation room, 16 ft. 7 inches long, seats 13 persons, and it is here the highest degree of art in upholstery is found. Plainly no ordinary workmen had to do with this part of the furnishings and decorations. To set down, item by item, the numerous pleasant effects would take columns, and then fail to convey a complete picture of the satisfactory results achieved. The psychological effect on travelers' minds can not fail to return dividends to the company in appreciation, even if such traffic continues to fall short of the desired point in cash. One can not fail to experience a feeling of regret that such attention to creature comfort should not be rewarded in a more generous way than the record shows.

The mind goes back to early days of railroading, and to the simple, inexpensive, and far from luxurious things the public had in return for its money. Beyond a doubt the upholstery, by itself, stirs memories. In pioneering times when the chief thought seemed to be that of getting across the country just as quickly as possible, when people ate when they could, and poorly, too, at wayside stations; when utility was the prime requisite in railroad building and comfort a secondary consideration, a certain type of fabric was popular because it embodied everything that was demanded for hard wear and long life, and, at the same time, provided a maximum of comfort. This fabric was mohair plush, or, what is now often called, mohair velvet. In these modern days when the straining after the acme of transportation comfort runs neck-and-neck with the demand for greater and better service, mohair velvet is still the acknowledged and accepted material for upholstery railroad coaches. Here, in these Rock Island lounge cars, you see it at its best.

Hand-Printed Mohair of Super-fine Quality for Lounge Cars.

Chase Velmo. Hand-Printed Frieze Mohair.

Among all the fabrics used for seat upholstery mohair velvet stands forth prominently, embodies all the sterling qualities necessary to a fabric which must not only be attractive in appear-

CANDIDLY

—is the connection between train pipe hose any place for a coupling which at best is maintained connected merely by the force of gravity — a coupling that seriously impedes the free flow of air and requires human hands to operate?

Contrast this method with the Robinson Automatic Connector. A thoroughly efficient, rigid coupling, pleasingly free from impediments to the quick flow of air—a coupling which insures maximum hose life, a tight train line, and requires in its operation no human assistance whatever.

ROBINSON AUTOMATIC CONNECTOR

415 Lexington Avenue
New York

"Building Automatic Connectors is our exclusive business"

ance, but also must be able to withstand a long period of severe usage.

Mohair fibre is the fleece of the Angora goat, and should never be confused with wool. This particular breed of goats originated in a vilayet of Asia Minor, Angora, by name. The city of Angora, the capital of this vilayet, is 200 miles from Constantinople, and about 2900 feet above sea-level. The altitude, the soil or the climate, or all of them combined, have a great influence in providing the Angora goat with a fleece of unusual fineness and luster.

Great herds of these goats are bred in America now in the same skillful and painstaking manner that horse-breeders employ. A purebred Angora goat is a refined animal of great beauty, covered with a dazzling white, fine, soft and very lustrous fleece, curling in ringlets from 10 to 18 inches long, and it is this fleece which provides the raw material for the beautiful and durable mohair velvets. Authorities have ventured to say that the history of the Angora goat dates back more than 2,400 years. There is evidence that a distinctive breed was known when Moses was leading the Israelites out of Egypt, for Angora fleece was spun and woven into curtains for the temple, and for other appurtenances of the temple as well. Read this:

Exodus XXXV—23. Gifts for the tabernacle: "And every man with whom was found blue, and purple and scarlet and fine linen, and *goat's hair*, and red skins of rams, brought them."

One of the reasons why mohair velvets apparently are impervious to long-continued hard wear lies in the physical structure of the mohair fibres themselves. Another reason is found in the way they are woven.

To begin with, no other textile fibre possesses the strength of mohair, a fact established by the United States government tests which show it to have two and a half times the strength of wool, and many times that of other fibres. Next, each mohair fibre has an oil-duct down its center, similar to that of human hair, which means that even after the washing and scouring necessary to prepare mohair for manufacture into fabrics, sufficient oil is retained in this protected duct to insure the enduring "liveliness" as well as the lustre of the fibre. It is this "liveliness" of the fibre which produces the resilience of the woven fabric, and makes it immune to marring and crushing. This construction of the mohair fibre also has an effect upon the dye-fastness of the finished fabric, for the dyes penetrate into the oil duct, and so thoroughly impregnate the fibre that color-fastness is assured when suitable dyes are used. Moreover, the outer surface of the mohair fibre is perfectly smooth, whereas that of a wool fibre shows minute bracts, and that of other textile fibres is more or less roughened and irregular. The smoothness of the mohair prevents matting of a mohair pile. It is an interesting fact that felt cannot be made from mohair. Dust and dirt do not adhere to these smooth fibres, but can be easily brushed or shaken loose from the fabric.

In the manufactured products the physicial characteristics described mean that in mohair the maker of fine furniture finds great resiliency of pile, even color and color fastness, unusual resistance to long-continued hard wear, cleanliness, and long-continued maintenance of the distinctive and beautiful mohair luster.

The atmosphere of luxury and comfort which is a characteristic of American homes today, is now being expressed in du luxe railroad coaches. Railroad companies have learned that with increasing travel facilities, has come from patrons the demand to feel at home regardless of whether they are on a train, in an automobile, or crossing the ocean in an airship. And it is still mohair velvet that meets this demand for luxury and comfort, for with the changing fashions and alterations in artistic standards and values, the manufacturers of mohair fabrics have sensed the modernistic trend, and they are today producing mohair upholstery in a wide variety of colors and in highly decorative patterns. The plain shades so common a decade ago, have given way to art pastel tones or vivid contrasts; stripes, floral, and, even, futuristic designs, all of which are reflecting the feeling of the artistic and refined modern home.

This new spirit of interior decorating has been obtained through the medium of mohair velvet better than with any other upholstering material, for no other material is so "sympathetically sensitive" to dyes. The result is that unlimited patterns in dependable fast colors of every known shade and hue, are available for railroad coach upholstery. Added to this, is the well known long wearing qualities of mohair fabrics which make them an important factor in the reduction of maintenance costs in railroad operating.

Sun Room on the Rocky Mountain Limited.

SELF-PROPELLED COMPRESSOR and "STRAIGHT BACK" TIE TAMPERS

On The Job

MANY railroads are using these units because of their convenience, speed and reliability. The standard CP Compressor is mounted on a truck frame carrying flanged wheels with Timken roller bearings, transverse shifting wheels and winch, air-operated lifting jacks, lifting bale and a roomy tool box. The gasoline engine that operates the compressor also propels the car at a speed of 12 to 18 miles per hour, depending upon its size. The compressor is furnished in sizes of 110, 160, 220, 265 and 310 cu. ft. per minute displacement. The CP Tie Tampers have several interesting features that are fully described in folder No. 1646. Details of the Self-Propelled Compressors are given in Bulletin No 789.

Chicago Pneumatic Tool Company

Railroad Department

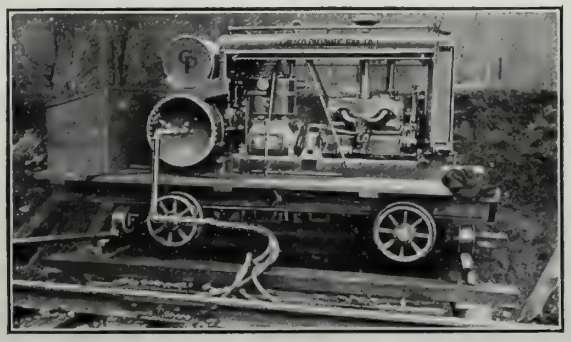
6 East 44th Street
New York

1004 Mutual Bldg.
Richmond, Va.

175 First Street
San Francisco

310 S. Michigan Ave.
Chicago

J-293



Railroad managements may not have given it a thought, but it is true, nevertheless, that in providing the finest and best of everything they are serving mightily in educating the people. No man, or woman, or child for that matter, can ride in the handsome coaches railroads are using nowdays without learning a lesson in thoughtfulness for property, in culture. Sometimes, however, it does seem like Love's Labor's Lost, or words to the same effect. A passenger complained not long ago because there was no radio on the train. The Rising Generation takes it all as commonplace, but Old Timers sometimes wonder, as did the high school essayist: Whither are we drifting?

Ran the First Pullman

In a secluded part of Holden, Mass., far from earshot of the strident call of the locomotive, Henry M. Moulton, 84 years old, the first conductor of a Pullman car to run out of Chicago, is resting from the excitement attendant upon his celebration, with Mrs. Moulton, of the sixtieth anniversary of their marriage May 27.

At the age of 21 Moulton, who had left his native Brimfield some time before, was a clerk at the old Adams house in Chicago, where George Pullman was then living. Pullman had met and liked young Moulton and he offered him a job as conductor on his first dining car running between Chicago and St. Louis.

Later when the Chicago board of trade engaged a Pullman train for a trip to the Pacific Coast, Moulton got the assignment and handled the excursion, a rather novel one for those days, throughout the thirteen weeks required for the trip. He served the Pullman Company thirteen years until ill health forced his retirement.

When Moulton gave up railroading he gave it up for good. He bought a farm near Holden and his home is so far removed from the tracks of the Boston & Maine Railroad that he cannot hear the familiar whistle of the trains passing the town and he has not seen a Pullman car in years.

Some Train, We'll Tell the World

On American railroads, last year, there were loaded 51,576,731 cars of revenue freight. In addressing the tenth yearly convention of the transportation division of the American Railway Association in Chicago, May 30, R. H. Aishton, president, said, as usual, a number of very interesting things in his customary, unusual way. This is what he said about the 51 million - and - something cars of freight:

"If you put those cars into a solid train and then hooked up enough motive power to handle it, it would require a million engines and a similar number of caboose cars to provide shelter for the crews necessary to handle the train, and incidentally it would take a crew three times as large as the entire population of Chicago to run it. Using a conservative length for every unit of this composite train, we should have 10,000 miles of locomotives, 390,732 miles of train and 5,685 miles of caboose cars, an over-all length of 406,417 miles. Routed west through this city, and reported on block 7 a.m. this morning, traveling 30 miles an hour, it would require approximately 564 days and 11 hours to clear the block, having wrapped itself around the world more than 16 times en route. This train represents the growth of freight transportation in 100 years and yet some persons say the romance has gone out of railroading.

"When Washington Irving wrote Rip Van Winkle he used a period of 20 years to indicate how times changed. Yet you will remember that when Rip got back to his native village in the Catskills the only change he noted was that the ones who were young when he left were old, and the older ones still older. Today, a man can't sleep for 20 years and then work back into the picture. In fact, so fast is the pace that if he is not at all times awake to new ideas, he may as well step out of the line, for if he does not, the line will shove him aside."

A Corner in the Lounge for Women, in the Rock Island's New Equipment on the Rocky Mountain Limited.

Where the Students Go Nowdays

More than 4400 college graduates, representing approximately 215 American universities, colleges and technical schools, are in the employ of the General Electric Company. In addition there are more than 300 graduates of educational institutions in 35 foreign countries. Forty women in the employ of the company also are university or college graduates.

Radio on the Milwaukee

Installation of receiving sets on the eight units of the Olympian, the crack train on the Milwaukee railway, has just been completed.

The Olympian is the first through train between Chicago and the Pacific Northwest to be equipped with radio.

Little Stories About Big Men

Walter L. Ross, President, The Nickel Plate.

A GROUP OF railroad men gathered in a Cincinnati club, one day not long ago. As might be expected in such a place, their pipes and cigars going well, they started to talk about their neighbors, how this one had risen from obscurity to what may properly be called fame in industry, how another had not seemed to make the headway expected, how another had failed. And eventually, as might also be expected, considering where they were, they talked about the Nickel Plate and its president.

"Of course," said one, "he started as a telegrapher. A good many seem to have had the same beginning. Actually, however, what a man becomes, what he accomplishes depends upon himself. I don't care whether he starts as an operator or a section hand. Operators of the right kind rise because they live and work in a railroad school. They have a chance to study things, especially the operating department—I mean the movement of trains—they see the traffic end of the business at first hand, and they can learn about maintenance every day. There's no better school. As for W. L. Ross, who came from the telegraph desk to the presidency, as many others have done, well—Ross's story would warm the heart of Horatio Alger."

Judging by the talk of this after-luncheon group, the rise of Walter Ross was due to a combination of genius, enterprise, and a willingness to work, qualities common enough among successful men. "You may have noticed," said the story-teller, "that whenever you study the record of a successful man you find he was a good worker. They all mention it. Money won't get you up. Pull may do it, but pull won't make brains, and without these down you come."

Ross was born on New Year's Day, 1865, at Bloomington, Ill. Such education as books could give him, the foundation upon which life is built, he got in the public schools of that town. At 14 his father died. The boy had to get out and earn a living. Many a boy has faced precisely the same situation. After a while, when his mother re-married, the family moved to Streator, and the boy found work as a messenger for the Western Union. With that company he learned telegraphy, became an operator and clerk at the customary small pay, kept his eyes peeled for a better job, and eventually landed one with the Wabash Railway as a kind of glorified office boy, all of which seems to indicate that he knew enough to give up the easier place for one that offered a future. Forty dollars a month. The chap who hasn't worked for forty dollars never learns much about money until pretty well along in life.

Starting with the Wabash in this humble capacity young Ross rose through the ranks, doing the work of messenger, operator, chief clerk and cashier; clerk in the trainmaster's and dispatcher's offices, agent here and there for several lines, always learning some new department of railroading, improving himself as he went along, the familiar story of the age-old conquest of ambitious young men watching for Opportunity. Walter doesn't seem to have had much faith in the dismal philosophy of the late Senator Ingalls that Opportunity knocks but once at every door and checks off the chap who chances to be asleep when he called. Men and boys simply must sleep occasionally. He was and is a lively and optimistic disciple of Walter Malone, who says,

They do me wrong who say I come no more
When once I knock and fail to find you in.
Each morn I stand outside your door
To bid you rise and work and win.

That was Walter Ross's policy. His record proves it.

When the knock sounded on his station door one day, he wasn't stretched out in the bay-window asleep, as many an operator has been when the dispatcher wanted him. He was on the job to meet whoever came along, and among the visitors there chanced to be—for Chance really works some miracles, after all—Theodore Shontz, who was to have much to do with the Panama Canal in later years, and Phil Morton, afterward secretary of the navy. Just then these two were engaged in building what was to be known as the Three I's Railway. In the course of time

San Bernardino, His Home Town, Rolled Over, Figuratively, and Emitted Sounds of Joy and Pride When Paul Shoup Became President of the Southern Pacific. Paul Was a Member of This Fire Fighting Outfit in the Springtime of Life.

they went to Streator, had to send many messages, railroad messages, and as might be expected they met young Ross. They liked the way he did things, the speed he showed, his affability, his all 'round pleasant manners.

There was another man of the same family name associated with Shontz and Morton at this time, George H. Ross. As the first two mentioned the operator he wondered whether there might be a relationship between them. As anyone might do in the circumstances he called one day to see the youngster. He, too, liked him. Their talk was much more intimate than usually is heard between railway engineers and telegraphers. The older man believed he saw promising capacities in the younger Ross certain to warrant his moving up into heavier responsibilities. Chance.

Not long after this event the New York Central bought the Three I's, and Shontz and his colleagues took over the Clover Leaf. They wanted to improve it, and to do this they looked for certain kinds of men. Naturally they remembered the snappy young man at Streator. Ross sent for his namesake and made him assistant general passenger agent of the Clover Leaf with headquarters at Toledo.

Then, said the man who was telling the tale in the Cincinnati club, Fate took a hand in the game. President Roosevelt decided to send Theodore Shontz to Panama to help in getting the Big Ditch dug through the isthmus, and the decision made a vacancy. The vacancy meant promotions, changes here and there all along the line, as happens on railroads. The powers remembered young Ross, now married, father of two smaller editions of himself, still making friends, still getting the limit in work out of his forces, and still creating loyalty and good will among those who took his orders. So the powers made him general freight agent.

By this time Walter Ross had attracted nation-wide attention among railroad executives for his almost uncanny accuracy in making decisions. "He was a whale of a guesser," said the club man, "and he seldom made a mistake. But good guessing, you must remember, is the result of grilling experience, quick brain work, brains that respond instantly. He could have taken the Benet test and got 100 plus."

Ross held his new job for five years. Then Circumstance, with a capital letter, took a hand. The Clover Leaf bought the Chicago Northern, and big men were in demand for the combine. Ross became assistant freight traffic manager. A year later he was vice president of the road, and then president of the Clover Leaf when the parting of the two roads took place four years afterward. Still later, when the Van Swearingen Brothers peeped over the railroad horizon, Ross went to Toledo as president of the Nickel Plate which now included the Clover Leaf.

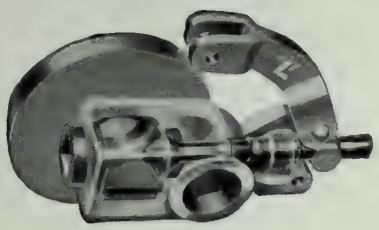
This was where Ross's old friends began to question his mental status. To accept the presidency of a property badly run down, in the opinion of railroaders, seemed to point to only one thing. They hated to say it, but they did think that Ross had it, whatever it was; which shows just how seriously you may take the gloomy prognostications of your pessimistic friends.

If you have a spark of romance in your make-up, and who hasn't?, you can not fail to be impressed when you enter the office of President Ross of the Nickel Plate in Cleveland. He must not be held responsible for the magnificent furnishings, walls of rare wood imported from some far-off land—Ross didn't do it. Indeed he protested against such lavishness, but his directors insisted. It was, as all well-informed persons know, a tribute of the board in recognition of merit and regard. And there he shows up every blessed morning early, as an example to others, and there he works hard, as do all railroad executives, and a whole lot harder than some.

Don't get the idea that Walter Ross is a grind. He has a real hobby, as most hard thinkers and workers have—horses. The minute you enter the throne-room of the Nickel Plate you know, if you are a close observer, and this is true of most men. On their desks you see model locomotives, airplanes, or whatever it is they like best. On Mr. Ross's desk you find a statuette of a horse, one he liked better than any other, and any man—at least in this writer's opinion—any man who likes horses or dogs is certain to be kind to children, and if he is kind to these he can't be very hard-boiled.

(Turn to Page 74)

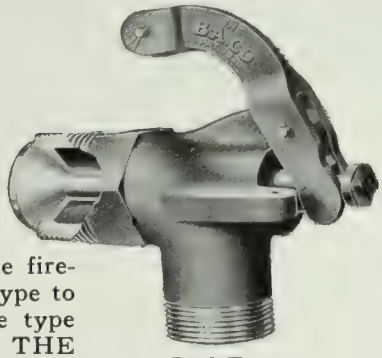
Illustrated on this Page are Four Types of the



Narrow Clearance Type

BACO

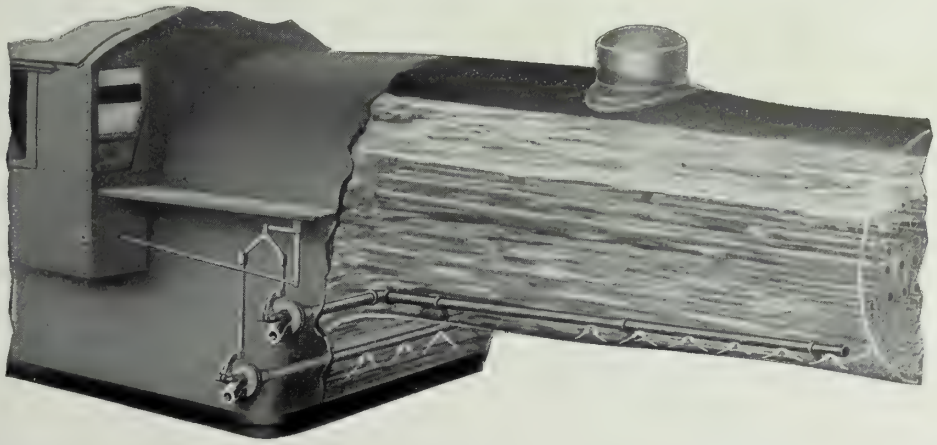
Blow-off Cock



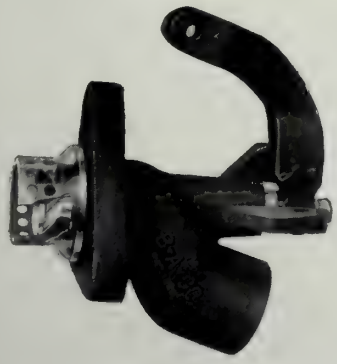
Bird Type

The Narrow Clearance type for application to extremely wide fireboxes for use with or without the Sludge Remover.—The Bird type to be screwed into the boiler.—The Northwestern and Milwaukee type (flanged)—The Wilson type designed especially to be used with THE B-A CO. SLUDGE REMOVER.

Each valve has only three component parts—Can be ground while the locomotive is under steam —And is kept closed by boiler pressure.



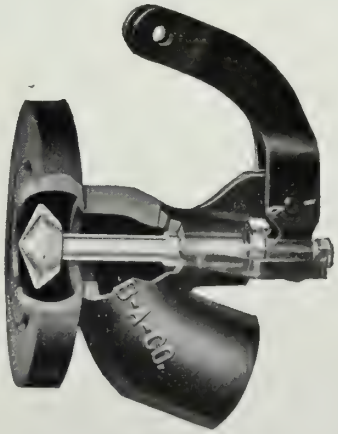
Above is—THE B-A CO. SLUDGE REMOVER—Consisting of two B-A CO. BLOW-OFF COCKS hooked up in tandem. These valves being connected to a system of slotted pipes clearing the belly of the boiler as well as the mudring, of all mud and suspended matter, at one operation.



Northwestern & Milwaukee Type

THE BIRD-ARCHER COMPANY

is engaged primarily in the manufacture and supply of boiler chemicals for water treatment—but its activities in rendering the necessary expert service in this connection, are properly extended to cover the installation and service of B-A CO. Blow-Off Cocks, and Sludge Removers, all of these items being consistently designed to obtain one end: The promotion of locomotive boiler efficiency.



Wilson Type

THE BIRD-ARCHER COMPANY

NEW YORK

PHILADELPHIA CHICAGO ST. LOUIS MONTREAL WINNIPEG

BUENOS AIRES Argentina MANILA P. I. SYDNEY Australia

(Continued from Page 72)

Mr. Ross is a good judge of men, and also a judge of good men, which is something else again. He has a faculty for choosing just the right ones for certain work. Having made his choice he lets that man work out his own fate in his own way. He lets him carry the responsibility the job entails. But he must have results. One of the fatal mistakes many railroad executives make is in giving men certain things to do, and then insisting on their doing those things as they, the all-powerful, egotistical chiefs, think they would do them. Initiative, energy, self-confidence are never created or encouraged in that way. Ross wants results, satisfactory results, and if he doesn't get them the man who fails is quietly removed. He chose a messenger boy for a better job once upon a time. "Jimmie" Graham he was called then. Now the messenger boy is J. W. Graham, vice president in charge of traffic of the Nickel Plate. If you don't believe it look in the Official Pocket List.

He is no grind, not in a hundred years. Horses may be his chief delight, but he plays golf, and what do you know about it, he is left-handed! We have always had our own private opinion of left-handed golfers—what do they call them in baseball, Southpaws? Personally, we have never seen one who could kick up much whoopee on a course, but unselfish friends declare that Walter Ross gets there every time with his Southpaw shots. There are several places to go outside the little hole. He plays bridge, too, and is said to be one of the ten best in Cleveland due, doubtless, to the fact that he is such a wizard as a guesser. As to his golf score, only he and his caddy are competent witnesses, and caddies, it is said, are susceptible to optical and mathematical delusions.

Mr. Ross has done wonderful things in getting freight traffic for the Nickel Plate. Now, it is said, he intends to do equally strenuous and marvelous things with passenger business. He has some pretty fine passenger trains already running from New York, through Chicago to St. Louis. "If Ross does start after passenger traffic," said the club narrator, "if he does go after it, well, goodnight to the bus business."

"Local Boy Makes Good"

When Paul Shoup was a boy in San Bernardino everyone in town knew he was going to make good at something, but of course no one knew just what it would be. The children loved him, naturally, because he was a fireman, head of Deluge Hose Co. No. 2, and next to being a policeman, nothing could surpass that honor. That was 40 years ago—can you believe it?

Well, it's a long story, men, but a good one. January 1, as the world has been informed, Paul became president of the Southern Pacific Company, and all the luncheon and dinner fiends in the state broke out. For hours and hours the San Bernardino boy, with the old smile of his fireman days, listened to orations in which he must have wondered who they were talking about or, to employ the precise grammar of President Shoup, of whom were they speaking. How often he must have remembered the days when he and Deluge Co. No. 2 hustled out in the dead of night and arrived in time to save the lot.

Finally came the greatest day of all. San Bernardino put on a special celebration for Paul. The old home of his boyhood was visited; he went to fire headquarters, read the minutes of a meeting, held 37 years ago, in which he had recorded the dismal fact that the boneheads of that earlier day, most of whom doubtless have got whatever was coming to them, had defeated him for re-election as secretary of the department.

The picture tells the tale. The boys turned out, Paul in his helmet, the hose cart on duty again, another generation of children cheering everything, and Paul Shoup smiling just as, doubtless, he smiled forty years ago, enjoying all of it. It's a fine quality to preserve: the quality of good humor, the friendly smile.

P&A Photo.

Patrick J. Condon, Head of the Parmelee Company of Chicago, Official Transfer Organization for Railroads, Turns Over the Great Business to His 29-Year Old Son, Charles J. The Elder Condon Retired May 9.

Has the I. C. C. Heard About This?

A membership drive was launched May 18 at a meeting of the Brotherhood of Rail and Steamship Clerks at the Morrison Hotel, Chicago, following assertions of leaders in the union that consolidation of all the railroads of the United States is inevitable in the comparatively near future.

(Turn to Page 76)

The AMERICAN AUTOMATIC CONNECTOR

Has been in successful and practical operation for more than ten years on American Railways.

It is still in successful and practical operation under the most severe climatic and operating conditions.

Why delay further application of such an economic and safety device?

THE CONSOLIDATED CONNECTOR CORPORATION
118 Noble Court • Cleveland • Ohio

(Continued from Page 74)

"A large number of our men will be released from service when this consolidation is finally consummated," it was declared by George M. Harrison of Cincinnati, president of the brotherhood. "It behooves us to strengthen our organization so that we will be in better position to seek favorable terms when the time comes. Now we have three shifts of eight hours apiece, seven days a week. We should have three shifts of six hours apiece and get off one day of the week."

Why Have Passenger Trains?

Notwithstanding the fact that the Southern Pacific had the largest gross operating income in the history of the system, passenger earnings in 1928 decreased $2,887,296, and the net return from railway operations was but 3.76 per cent. The average return for the past eight years was 3.94 per cent. The increase in 1928 in road and equipment included $22,048,416 for additions and betterments; $8,065,710 for power and other rolling equipment; $902,987 for road extensions and $270,145 for floating equipment, a total of $31,287,260. Retirements, equipment vacated and adjustments amounted to $9,446,121, bringing the total net increase to $25,446,588.

—P & A Photo.

Just How Conductor Arthur Curtiss James Expects the Engineer to See This Highball Is Too Much for Us. Still, Look At the Crew He has for the Journey.

Why All This Haste?

The Interstate Commerce Commission has advised the Colorado public utilities commission that it expects to inventory for valuation purposes the property of the Moffat Tunnel improvement district. Engineers and accountants will begin work about June 10 and the Colorado commission has designated an engineer to represent it.

The Denver & Salt Lake and Denver & Rio Grande Western have been unable to reach an agreement for joint use of the Moffat Tunnel and Denver & Salt Lake tracks. The commission recently made a tentative decision based on both roads submitting contracts acceptable to them. The action of the commission in making its own appraisement of the Moffat Tunnel indicates it does not expect an agreement between the roads and is preparing to set up its own tract. Meanwhile, the people of Colorado are much stirred up over the taxes they pay.

—P & A Photo.

When the Great Northern's 61-Hour Flyer Arrived At Seattle, June 10, This Notable Crew Lined Up for the Camera Men. Left to Right: Stephen Baker, New York Banker; F. E. Weyerhaeuser, Lumber Magnate; W. C. Loring, President, Pillsbury Flour Mills Co.; E. E. Loomis, President, Lehigh Valley Railroad; Arthur Curtiss James, Chairman of the Board, Western Pacific, and Director of the Great Northern; J. C. Chapman, Financier, and Ralph Budd, President, Great Northern Ry. Mr. Loomis, With His Foot on the Lantern, Looks As if He Had Just Heard of Another Government Barge Line.

YELLOWSTONE (2-8-8-4) TYPE LOCOMOTIVE, NORTHERN PACIFIC RAILWAY

This is the largest steam locomotive in the world. Steam is admitted to the cylinders by means of a power-operated American multiple throttle, the largest thus far applied to any locomotive. It is also the first installation of a power-operated throttle on any steam locomotive.

The Throttle Valve Problem *is Finally Solved*

THE American multiple throttle satisfactorily and successfully solves the locomotive throttle valve problem.

It eliminates application cost because, being cast integral with the superheater header, it is automatically installed with the header.

It reduces the number of steam joints in the smokebox.

Using a series of small valves, it is more easily ground steamtight and because of less likelihood of warping these valves remain tight over longer periods.

Opening consecutively these small valves give better and easier control of the locomotive.

It provides ample steam area for any locomotive.

The American multiple throttle meets every requirement in the operation of modern superheater power.

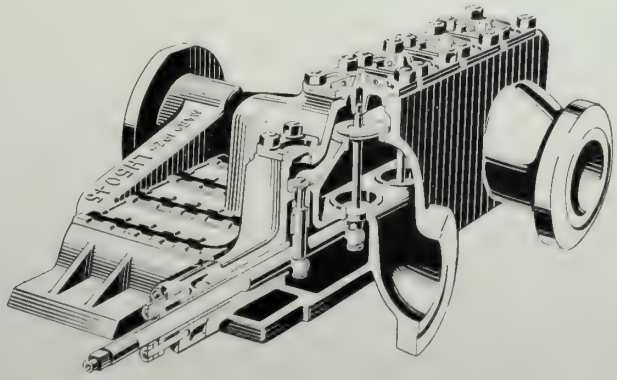
AMERICAN THROTTLE COMPANY, Inc.

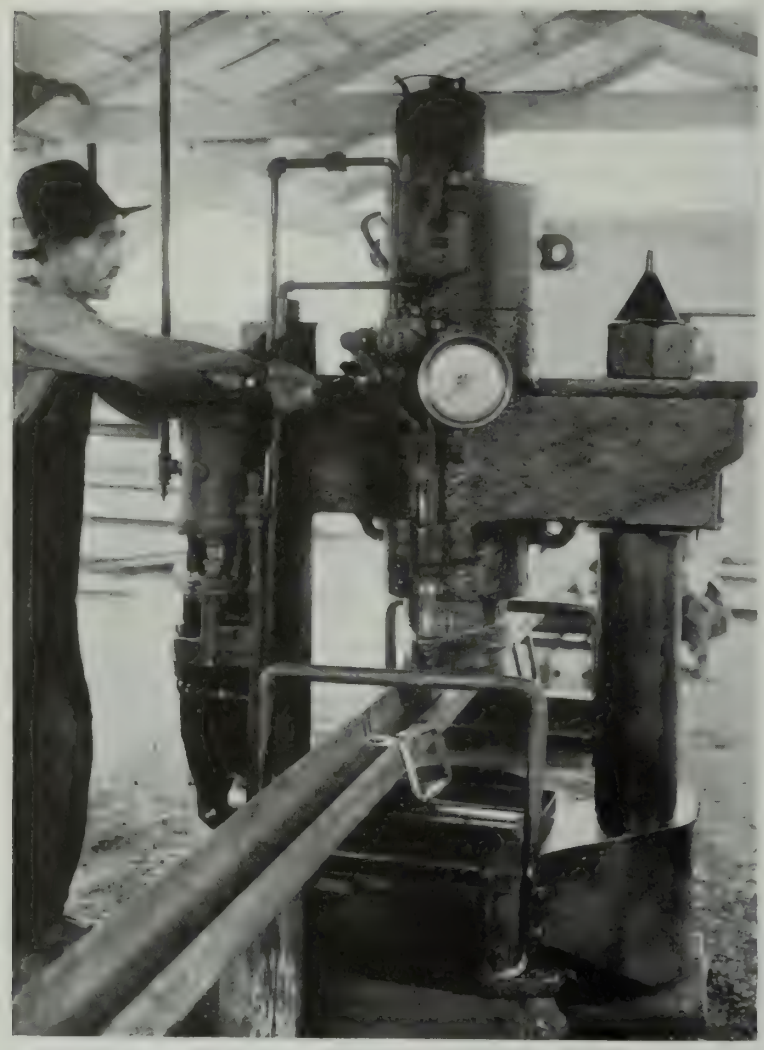
NEW YORK
17 East 42nd St.

CHICAGO
Peoples Gas Bldg.

Canadian Representatives:
The Superheater Co., Ltd., Montreal

A-253





Rail Straightener Used in the Southern Pacific Sacramento Reclamation Plant.

(Continued from Page 40)

metal clip boards, carbon paper put up in envelopes instead of boxes, etc.

Upon completion of the work a permanent stationery committee was formed consisting of a representative from the operating, traffic, accounting and purchasing departments who meet at regular intervals to consider various questions and pass on new forms.

The result of this investigation has been still further to reduce the cost of stationery and printing every year. The ratio of the cost of stationery and printing per thousand dollars of operating revenue which amounted to $3.73 in 1923, was reduced to $2.86 in 1928.

No railroad in America has surpassed the St. Louis-San Francisco in reclamation work or in making new things out of old. A good deal about its big shop at Springfield, Mo., was published in this magazine not long ago, but much remains to be told, and it is worth reading because of the economic value of the work done. You don't have to study Frisco methods very long to realize that Herbert Hoover would be happy if he could spend a day in this headquarters for the elimination of waste.

Three of the principal items manufactured at this Springfield reclamation plant are frogs, switch points and guard rails. Before the big rail saw arrived at the shop, the railroad was buying about sixty per cent of this material. However, since its installation, the reclamation plant manufactures all of these articles used. This material, all manufactured from scrap, represents a saving of over $5,000 a month, since that sum represents the price of new material bought of the manufacturer. More than 13,000 tie, brace and follower plates are manufactured from scrap material monthly which constitutes a saving of $2,500.

More than 1000 mileage markers are manufactured in this Springfield plant every month, which, compared to a purchase price, constitutes a saving of approximately $418. All the crossing stop signs are made there, and when it is recalled that Mississippi, Arkansas and Oklahoma have stop signs installed by the Frisco, it is easy to see that this amounts to quite an item. The cost amounted to $30,000 for one state alone. The cost for Oklahoma, which recently acquired the "Stop" law, was $5 a sign.

The blacksmith shop reclaims almost all of the track material, such as bumping posts; track shovels, with handles to be straightened—and these are handled in quantities—journal blades are cut up and scuffle hoes made; tie plates are manufactured from scrap steel; switch lamps, lanterns, engine and caboose markers are reclaimed and put in first class order. Practically all fabricated parts for freight cars are manufactured from scrap material in this shop. There also are reclaimed clay picks, tamping picks, mail cranes, switch stands, spike mauls, track chisels and claw bars.

Rusty nuts, washers and bolts are placed in the revolving rattler and when they are taken out, they are ready for the next step of reconditioning. The oxweld plant reclaims brake beams and couplers. In the tin shop mileage markers are manufactured out of old roofing tin. Fire buckets, hand lanterns, switch lamps, engine markers, oil cans, small tanks, pipe fittings, engineers' oilers and numerous other articles are also made. Tool carts, blowoff cock mufflers and post hole diggers are among the many other things made there. In 1928, there was an accumulation of approximately 3,000 shovel handles. New shovel plates were purchased to fit these handles, and the old ones reclaimed for other purposes.

One of the interesting features is the waste paper house. The contents of every waste paper basket from the entire system is shipped to Springfield, with the exception of St. Louis. The paper is baled with an air-driven baler, in bales of 100 pounds. This paper is sold for 67½ cents a hundredweight, or almost one cent a pound.

We can prove that you cannot afford not to buy Improved Hipowers, for in spite of the greater cost per unit, the final cost is less.

THE NATIONAL LOCK WASHER COMPANY
Newark, New Jersey, U. S. A.

IMPROVED
HIPOWER

The News of the Month

What's Been Going on in Transportation, Railroads, Automotive, Supply, Aviation

New Station of the Union Pacific At East Los Angeles, and One of the Company's Handsome New Buses. The Station Cost About $100,000. Passengers Arriving on Union Pacific Trains Are Taken in These Buses to Surrounding Points in Metropolitan Los Angeles, and Its Suburbs.

BEGINNING July 1, the border officials of Mexico at Mexicali will permit no railroad trains to enter the republic from the United States between 9 p.m. and 6 a.m. This means that trains will be treated exactly as persons afoot or in automobiles are treated.

Governor Rodriguez announced, June 8, that letters had been sent the Southern Pacific Company and the San Diego & Arizona advising them that after July 1 the same rules will apply to pedestrian and vehicular traffic across the border.

According to officials of railroads at Mexicali the proposed new regulation will have a disastrous effect on the handling of perishables, and will make revisions of train schedules necessary. Gov. Rodriguez said he could see no sense in barring pedestrians or motorists from the republic after 9 p.m. but letting them come in if they chanced to be on a train.

Ford Railroad Indicted

Charges of soliciting and receiving illegal coal rates were made in twenty-five counts of an indictment returned against the Detroit, Toledo & Ironton Railroad, owned by Henry Ford, by the Federal grand jury at Columbus.

The indictment charges that the Fordson Coal Company shipped coal at Hardy and Stone, Ky., on various dates. The coal, it is charged, actually was destined for Ironton and Jackson, O., but, the bill charges, the coal was delivered to the Norfolk & Western Railroad at Hardy, for South Charleston, O., though it never reached the latter point, finding its way, instead, to Jackson and Ironton, thus, by circuitous routing obtaining an unfair advantage.

Grade Eliminations Numerous

Millions of dollars are being spent in many states, a large share of the money coming from railroad treasuries, for grade crossing eliminations. The railroad commission of California authorized the abolishing of 41 such crossings in May at a cost of $4,250,000. In New York state the public service commission had issued 324 orders for grade eliminations up to April 15 outside the city of New York. These 324 orders involved more than 500 projects. Projects now under way will cost $5,210,000. Others are in process of preparation. Twenty highway grade crossings in Elizabeth, N. J., are ordered eliminated on the Central of New Jersey, the work to begin by January 1, 1931 and to be completed in three years.

The Belt Line in Operation

The Los Angeles port $59,000,000 Harbor Belt Line Railway began operation officially in the closing days of May with colorful ceremonies, including the breaking of a bottle of ginger ale on the pilot of the leading locomotive by Mrs. George F. Squires, wife of the line's operating head.

The belt line places Los Angeles Harbor in a position unique among the ports of the world, since it is the only harbor where all municipal and privately owned rail facilities are grouped under a single operating organization. The harbor department and the four railroads, Pacific Electric, Union Pacific, Santa Fe and Southern Pacific, have agreed to unified operation for a minimum of five years. Launching of the big transport system follows two years of intensive effort by rail and harbor department officials arranging tariffs and operating plans, fol-

More Ton Miles Per Gallon of Fuel Oil

ARE SECURED BY USING THE

MARTIN CIRCULATOR

PRACTICAL results on a number of prominent railroads burning fuel oil have proved that it is now possible to increase the efficiency of an oil-burning locomotive by equipping the bottom of the firebox with the Martin Circulator.

It is just as logical to use the bottom of the firebox as its sides, ends and top. Circulator elements or tables form the bottom of the firebox into a firing chamber which removes all fire brick from the side sheets and bottom.

The old-fashioned brick pan with its many troubles need no longer be used. Why store heat energy in brick?

The Circulator generates rapidly moving water into steam in the bottom of the firebox, saving fuel, firebox sheets, boiler tubes, staybolts and fire brick.

Engines can be turned at terminals in two to three hours quicker time than at present, because it is not necessary to wait for the hot brick in the fire pan to cool off before water can be safely removed from the boiler for washing out.

Water is now circulated in a new path from the barrel of the boiler through the bottom of the firebox into the legs, and when the Circulator tables are acted upon by the flame of the oil burner they function as a continuously acting pump whose suction is the barrel of the boiler and whose discharge is the water legs of the firebox.

Circulator engines in service can be seen at Los Angeles, El Paso and Fort Worth while in the West.

Mechanical Officers are cordially invited to our shop, in Los Angeles, where Circulators are under construction.

Bulletin No. 102 fully describing boiler circulation with explanatory diagrams will be mailed on request.

LOCOMOTIVE BOILER ECONOMIZER COMPANY

ROOSEVELT BUILDING, LOS ANGELES, CAL.

Chicago Representative
CARTER BLATCHFORD
713 Railway Exchange

Southwestern Representatives
THE O'FALLON COMPANY
Telephone Bldg. - St. Louis, Mo.

lowed by approval of the scheme by the Interstate Commerce Commission and the state railroad commission.

All rail freight traffic of the four participating roads will be handled by the belt line from the time it arrives or departs the port area. A single consolidated terminal tariff of 60 cents per ton and a minimum of $10 per car, will be maintained, with each participating road paying charges according to its prorata of cars handled monthly. It is estimated that an average of 11,000 cars will be handled monthly by the equipment. Under Mr. Squires are 500 employes, 12 locomotives and 128 miles of trackage. James W. Mee, formerly port operating head for the Pacific Electric, will head the physical operations staff.

New Station at Omaha

Nebraska railroads entering Omaha have signed contracts for a union station costing more than $4,000,000. The present terminal, owned by the Union Pacific, will be torn down and replaced by a structure costing $3,500,000.

The Burlington station, 600 feet to the south, will become the south unit of the union station and $700,000 will be spent in reconstruction and rearrangement of trackage. The Great Western will use the Burlington entrance into the station.

Allstrand Heads Western Railway Club

In its yearly meeting at the Hotel Sherman, Chicago, May 6, the Western Railway club elected H. P. Allstrand president for the next year. Mr. Allstrand is assistant superintendent of motive power and machinery for the Chicago & North Western at Chicago. L. R. Wink, assistant superintendent, car department, C. & N. W., is first vice president, and C. T. Ripley, chief mechanical engineer, Santa Fe System, second vice president; J. W. Fogg, vice president, Mac-Lean-Fogg Lock Nut Co., Chicago, treasurer, and W. J. Dickinson, Chicago, secretary. New members of the board of directors are B. J. Farr, general superintendent motive power and car department, Grand Trunk Western, Battle Creek, Mich.; J. H. Nash, superintendent motive power, Illinois Central, Chicago; J. H. Reisse, mechanical assistant to vice president, C. B. & Q., Chicago; C. J. Wymer, superintendent car department, C. & E. I. Danville, Ill. Walter W. Head, president of the State Bank of Chicago, and Frank W. Noxon, secretary, Railway Business Association, were the principal speakers.

The Peddler

He sits upon his swivel chair,
The motive power chief,
And pours on every new device,
His adamant belief,
That it can not accomplish
The slightest bit of good,
Nor would he go to see it work
Not even if he could.
It's just a new contrivance
Hasn't heard of it before,
But it isn't, in his judgment,
Worth the dust upon the floor.
So you leave and go on farther
And at last you find a road
Which will try the new contrivance
If you will bear the load.
The test is quite successful,
But they make it very clear
That they can not buy another
Till the first has run a year.
For twelve months you sit a-waiting
And back you go again.
If you're lucky there's an order
For one—perhaps for ten.
Well, at last the waiting's over,
The device is good and fair,
You think you ought to see again
The man in the swivel chair.
So, with tests and curves and papers,
To his office you are led,
And there, unhappy fate, you find
The poor old man is dead.

—ANONYMOUS.

Great Western a Winner

The Chicago Great Western has the distinction of winning the prize in the Railroad Employes' National Safety Contest for 1928. The prize consists of a bronze plaque and is awarded by the National Safety Council. In making the announcement of the winners of the contest, the National Safety Council said:

"The Chicago Great Western has been designated winner in a group of 21 contestants. Its total casualty rate for the year 1928 is 3.30 as compared with 13.58 for 1923, a reduction of 75.70 per cent.

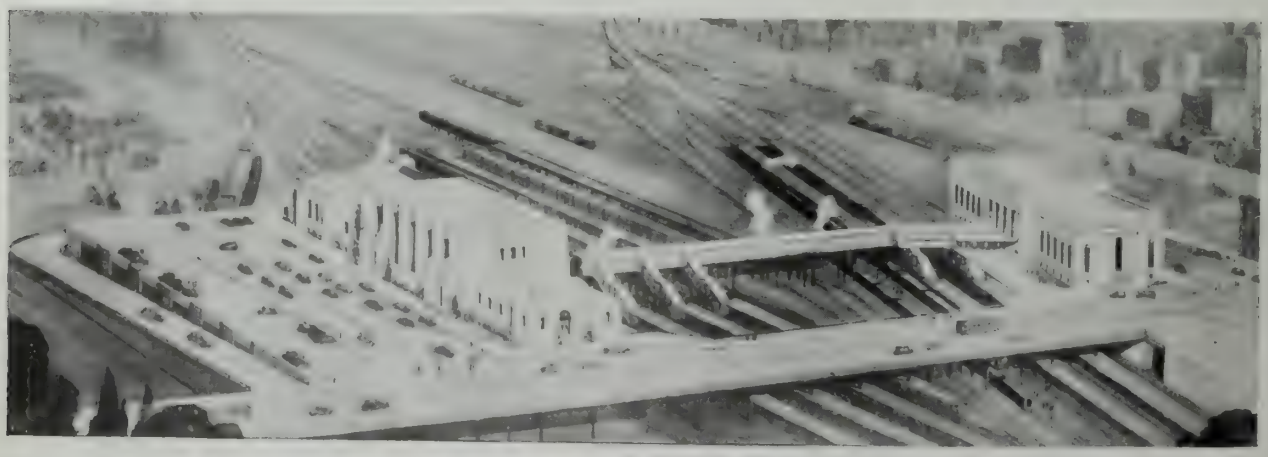
"This railroad ranked third in its group for the year 1923, and second for the years 1924, 1925, 1926 and 1927. The operating officials have instituted an aggressive safety contest, and the good record consistently improved year by year is proof that the contest plan is a most effective means of creating and maintaining interest in accident prevention among the entire organization. The Chicago Great Western is to be highly commended for its splendid record."

Buffalo's New Station Ready

Dedication ceremonies attending the opening of Buffalo's new passenger station Saturday, June 22, have been announced by the New York Central. Service in the new structure is to begin the next day, Sunday. The whole improvement, land, station and facilities cost about $14,000,000.

Gas-Electrics for the Rock Island

The Rock Island Lines have just placed in service three new 800-horsepower, distillate-burning, gas-electric motor cars of sufficient power to haul freight trains. These new motor cars are



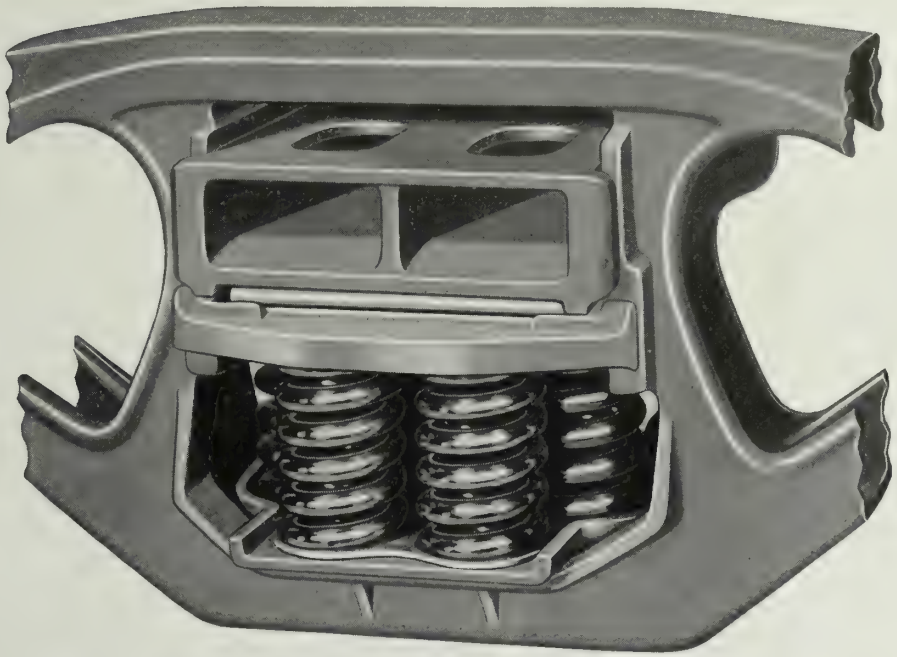
Omaha Is to Have a Rather Handsome and Commodious Passenger Terminal When Present Plans are Realized. The Burlington Station, at the Right, Is to Be Reconstructed at a Cost of $700,000.

STANDARD CAR TRUCK CO.

1322 McCORMICK BLDG., CHICAGO

Barber Lateral Motion Device

Applied to DALMAN One Level Truck.
—Drop Forged Roller Seat—



Barber Side Bearing and Arch

FOR SIX-WHEELED TRUCK

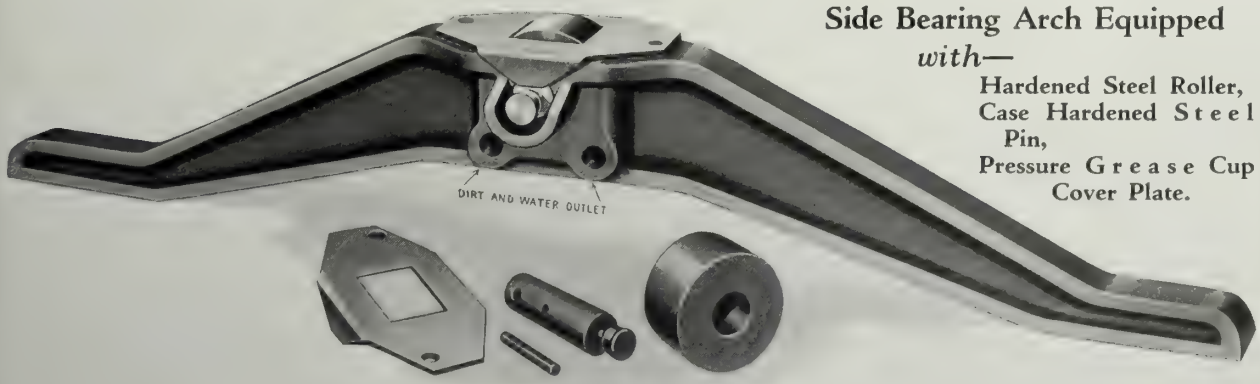
Also Furnished in Body Hung Type

200 Cars in Service

Ample Capacity

Unlimited Travel

Side Bearing Arch Equipped *with*—
Hardened Steel Roller,
Case Hardened Steel Pin,
Pressure Grease Cup Cover Plate.



Federal Railway Device Company
New York

Canadian Appliance Co.
Montreal, Canada

Goodell & Hoppe
St. Paul, Minn.

described by Rock Island officials as the "most powerful motor cars in the world." Used in freight service, these motor cars are geared to pull a freight train of 800 gross tons up a one per cent grade at 8 miles an hour, or 37 miles an hour on level track. In passenger service, these cars will haul a total of 260 tons, based on four trailing cars in fast service. The trucks are equipped with roller bearings. Each car carries two fuel tanks of 300-gallon capacity and is equipped with a hot-water-heating plant for cold weather service. In a recent test, at which representatives of 16 railroads were present, one of these motor cars, operating between St. Joseph, Mo., and Topeka, Kans., hauled a total of 916 tons. The cars were constructed under specifications made by the Rock Island Lines management through the office of E. Wanamaker, electrical engineer.

National Diesel Engine Meeting

A large technical program has been arranged for the National Diesel Engine meeting at Pennsylvania State College, State College, Pa., June 24-27. The exhibition of Diesel engine accessories and parts is likely to be at least twice as large as that held last year. The technical program has stimulated a very active interest.

Superintendents at Mexico City

Special trains were scheduled to leave St. Louis, May 31, at 2 p.m., carrying several hundred persons to attend the 36th yearly convention of the American Association of Railroad Superintendents at the City of Mexico, to be held June 4-6. The delegates will leave the city Sunday, June 9, for the return by way of San Luis Potosi, Tampico and Brownsville to St. Louis.

The Erie Limited

The movement of the railroads to improve passenger equipment was marked last week by the Erie Railroad's exhibition of the first de luxe Chicago train which is to be run over its lines in several decades.

In placing the Erie Limited in service the railroad had in mind the good will of the communities it serves. It was felt that the centers which provided the Erie with its freight business should have the advantage of improved passenger service.

With this in mind J. J. Bernet, then president, ordered the assembling of a train that would not only provide the latest through Pullman service on the Erie's main line, but also elaborate day coach equipment. Dining cars designed for Florida traffic were delivered by the manufacturer to the Erie. Pullman cars with compartments usable singly or en suite were acquired. Terminating in Jersey City, the Erie enjoys a $2 differential over lines terminating in Manhattan. It therefore was able to charge for the Erie Limited the lowest rates for any 25-hour train between New York and Chicago and it also removed all excess fare for journeys between Chicago and points west of Paterson, N. J.

Men Must Argue

Ever since the well-known dawn of history men have been arguing over the comparative merits of this, that, and the other thing. Sometimes it is automobiles; sometimes, among the more profligate, a man swears by a certain kind of radio while his neighbors swear at it. Industries have their shop arguments, and railroads lead in this respect. All of which is preliminary to the interesting fact that an appliance invented and promoted for railroad use, the thermic syphon, has been quite generally adopted in oil field service all over the producing regions. In about a year syphons have been applied to nearly 500 boilers employed in that industry. The Oil Well Supply Co., Pittsburgh, Pa., one of the largest producers of this kind of machinery, has just issued Bulletin No. 94 in which five pages are given over to a discussion of syphons and their merits for the purposes described. Boilers so equipped are now used in oil fields in Texas, Oklahoma, Louisiana, and California. And, like the well-advertised cigarets of a nameless brand, they satisfy.

Thirty-five Years' Research and Development

For more than a third of a century the American Steel Foundries of New York, Chicago and St. Louis have taken a leading part in the development of American railroads. To draw attention to its important service, helpful to railroads, to the public and naturally to its own fortunes, the company has just issued an unusually handsome booklet of 35 pages, beautifully illustrated, and written in a way to make it exceptionally interesting reading, describing the events of the years in which the company has been concerned. The illustrations and brief text have been arranged conveniently in six groups, and these the author has placed briefly on a contents page. The illustrations of the company's machinery products are extremely well done, and with particular attention to artistic results.

Rio Grande in Bus Service

The Rio Grande Transportation Co. has been incorporated under the laws of Colorado, the papers signed by F. A. Peil and B. H. Taylor, officials of the Denver & Rio Grande Western, and W. J. Honeyman. Its capitalization is $100,000 and it is shown that the railroad holds 80 per cent of the stock, and Honeyman 20 per cent.

Gray Gables Opened May 20

"Gray Gables," named for Carl R. Gray, president of the Union Pacific, the new club house of the company at Laramie, Wyo., was opened formally May 20. It contains ballrooms, offices, cosy-corners, kitchens and many other things for the comfort of man. There are 500 active and associate members. The structure cost $19,000. Golf courses, tennis courts, horseshoe ranges, and all outside sports have been taken care of on the spacious grounds. It is situated about two miles from Laramie, along the Lincoln highway.

Railway Construction

Tracks & Yards

CALIFORNIA. — The Sacramento Northern has permission to build a 7.5-mile branch from Vacaville Junction to Creed where it connects with the San Francisco-Sacramento.

CANADA.—The following contracts for grading of branch lines have been let by the Canadian Pacific: From Nipawin, Sask., 25 miles toward Prince Albert to Fred Mannix, Calgary, Alta.; from Kootenay Landing, B. C., to Proctor, 35 miles; to Dutton & Grant, Winnipeg; from Lake Johnson, Sask., to Wymark, 27 miles, to Riley, Reid & Sandgren, Edmonton, Alta.; from Arrowwood, Alta., to Blackie, 25 miles, to Tomlinson Construction Co., Winnipeg; from Willingdon, Alta., to Vegreville, 25 miles, to Brooks Construction Co., Prince Albert, and from Unwin to a point 20 miles west, to Roosa & Wickstrand, Vermilion, Alta.

—The Canadian National plans, during 1929, to build second main track and revise grades between these points: Middleboro and South Junction, Man., 4.2 miles; Woodbridge and Baynham, Man., 6.2 miles, and South Saskatoon and Chappell Junction, Sask.

TYPE "BK" STOKER

HORSEPOWER

IN this country five horsepower are available for every man, woman and child. This, the richest country, possesses the highest horsepower—the poorest country the lowest.

Horsepower is not only indicative of national prosperity—it is also the source of railroad prosperity.

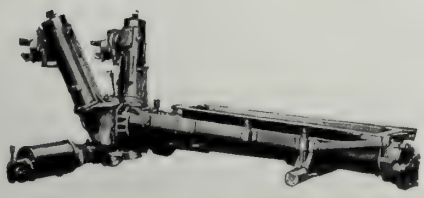
High horsepower gives the locomotive ability to haul more tons faster. It means greater operating economy, greater locomotive earning capacity.

Stoker firing increases locomotive horsepower by increasing the steam producing capacity of the boiler.

Stoker firing is essential on any locomotive, large or small, to fit it to fulfill the demands of modern railroading — the hauling of heavy trains at high speed.

THE STANDARD STOKER COMPANY, INC.

New York Chicago Erie



DUPLEX STOKER

TYPE "B" STOKER

KANSAS.—The Missouri Pacific has announced that it will build flood protection works and raise the track on 14 miles of line between Ottawa and Lomax and on 15 miles between Bridgeport and Marquette; the estimated cost being $157,210. Rock ballast will be applied and the track so anchored as to permit continuous service of trains in high water periods.

KENTUCKY.—Haly, Chisholm & Morris, Charlottesville, Va., has a contract from the Chesapeake & Ohio for a third track on its line from Big Sandy Junction to Pike Crossing; the estimated cost being $300,000.

—The Owensboro-Rockport Bridge Co. has permission to build 12 miles of railroad from Owensboro to Rockport, Ind., which will include a joint railroad and highway bridge over the Ohio River near Owensboro. The estimated cost is $5,203,275.

MISSOURI.—The St. Paul & Kansas City Short Line, a subsidiary of the Rock Island, has permission to construct 70 miles of railroad between Coburn and Birmingham, and also to operate under trackage rights over the Rock Island in Wayne County, Ia., and Mercer and Gundy counties, Mo.

MONTANA.—See North Dakota.

NORTH DAKOTA. — The Great Northern has let a contract to A. Guthrie & Co., St. Paul, for 23 miles of second main track between Williston, N. D., and Mondak, Mont.

TEXAS.—The Kansas City, Mexico & Orient, a subsidiary of the Santa Fe, has permission to build a 65-mile line from San Angelo to Sonora at a cost of $2,200,000. Bids will be received until June 17. It has permission to build also an 86-mile line from Alpine to a point on the Rio Grande near Presidio at an estimated cost of $3,505,325.

—The Fort Worth & Denver City plans to ask permission to build 110 miles of line to run from Childress, through Wellington and Shamrock, to Pampa, to cost $3,500,000 or $4,000,000. The line is to cross the Katy at Wellington, the Rock Island at Shamrock, and the Santa Fe at Pampa.

WASHINGTON. — The Port Angeles Western has asked for permission to build a 24-mile logging road from Forks, Clallam County, Wash., to the Hoh River, with a branch line to Spruce.

WEST VIRGINIA.—The Sewell Valley, subsidiary of the Chesapeake & Ohio, has permission to construct 1.4 miles in Greenbrier county, an extension of its Glencoe & Due branch.

Buildings & Structures

CALIFORNIA.—Los Angeles. This city, the Santa Fe and the Los Angeles & Salt Lake have asked permission to build a viaduct at Sixth street over the tracks of the two railroads and the Los Angeles River at an estimated cost of $2,162,900, which includes a pass under the tracks of the Santa Fe. It is agreed that the Salt Lake will build an elevated track from the river bank to the Southern Pacific passenger station and an elevated structure for the use of the Pacific Electric to cost $125,700. The city will bear 75 per cent, and the railroads 12.5 per cent each of the balance of the cost.

CANADA.—Ontario, St. Thomas. The Michigan Central has let a contract to D. W. Thurston, Detroit, for a new bridge over Kettle Creek to be built with six girder spans on concrete piers 100 feet above the water and to cost about $400,000.

—Toronto. The Canadian Pacific has let a contract to Anglin-Norcross, Ltd., for an enginehouse, turntable and ash handling plant. The cost is estimated at $800,000.

CONNECTICUT.—Greenwich. C. W. Blakeslee & Sons, New Haven, has a contract from the New Haven for a bridge to permit the widening of Sound Beach ave., to cost about $100,000.

GEORGIA.—Atlanta. Plans for the Nashville, Chattanooga & St. Louis passenger station here are being prepared by McDonald & Co. of Atlanta. When these plans are completed bids will be received for the construction.

ILLINOIS.—Chicago. The B. & O., the Burlington, the St. Charles Air Line and the Pennsylvania plan to eliminate railway crossings at Fifteenth street place and Stewart ave. by elevating the tracks of the St. Charles Air Line and the B. & O. above those of the Burlington and the Pennsylvania. This is subject to the approval of the city council. It is estimated this will cost $5,000,000, separation of grades costing $3,000,000, and track changes, $2,000,000. This project will eliminate 746 train stops a day.

—Eola. The Burlington has let a contract to the Roberts & Schaefer Co. for a "N. & W." type cinder plant to be installed here.

—Savanna. The Burlington has let a contract to the Roberts & Schaefer Co. for a "N. & W." type cinder plant to be installed here.

KENTUCKY.—Louisville. Bids will be taken by the Kentucky & Indiana Terminal on a contract to eliminate grade crossings by elevation of tracks along Thirty-first st. between Market st. and Garland ave. so that the work may start within 90 days. This announcement followed an agreement by the Kentucky & Indiana Terminal and the Louisville board of public works. The estimated cost is $1,000,000.

—Paintsville. Milo R. Hanke, Cincinnati, has a contract from the Chesapeake & Ohio for a $71,400 passenger station here.

MASSACHUSETTS. — Boston. The Tredennick-Billings Co., Boston, has two contracts from the New Haven: one for office extensions to warehouses 10 and 11 in the fruit terminal facilities on Fargo st., to cost $150,000, and one for platform and concrete driveways at the same point, to cost $50,000.

MICHIGAN.—Lake. The Pere Marquette has let a contract to the Roberts & Schaefer Co. for a 250-ton capacity, two-track, reinforced concrete automatic electric Rands shallow pit type locomotive coaling and sanding plant.

MISSOURI.—St. Louis. The Burlington plans to build a 1,000,000-bu. addition to its grain elevator and warehouse here.

NEBRASKA.—Alliance. The Burlington has let a contract to the Roberts & Schaefer Co. for a "N. & W." type cinder plant to be installed here.

—Gibson. The Roberts & Schaefer Co. has a contract from the Burlington for a "N. & W." type cinder plant to be installed here.

NEW JERSEY.—Bloomfield. The Erie has let a contract to James A. Hart, N. Y., for a two-story, brick freight house and for team tracks here. The building is to be 150 by 35 feet.

—Trenton Junction. The Reading is planning a passenger station here to consist of two buildings connected by a tunnel to care for both east and west bound traffic.

NEW YORK.—Corning. The Erie and the Lackawanna plan to eliminate a highway grade crossing here, to cost $160,000.

—Coxsackie. The New York Central plans to eliminate the Mansion st. crossing here at a cost of $172,900.

—Rensselaer. William M. Ballard, Inc., has a contract from the New York Central for additions and alterations to the engine terminal facilities here.

OHIO.—Cleveland. The Nickel Plate Development Co. has let a contract to R. S. Ursprung, Berea, O., for a $150,000, one-story brick and steel freight station to be 221 by 38 ft., to be built on East Seventy-fifth st.

PENNSYLVANIA. — Sewickley. The W. F. Trumble & Sons Co. has a contract from the Pennsylvania for a $100,000 passenger station here.

TEXAS. — Galveston. The Galveston Wharf Co. will build a modern reinforced concrete elevator here for the handling of export grain. This will be the largest elevator at any port on the gulf, and will have a storage capacity,

OIL ELECTRIC

For Increased Availability and lower costs

Availability

1. Oil-electric locomotives are in service seventy-five to ninety percent of time against forty to sixty percent for steam.

2. They accomplish ten to twenty percent more work than steam due to smooth, rapid acceleration and ease of control.

3. Oil-electric locomotives are accessible where steam is prohibited on account of fire hazard or smoke nuisance.

Economy

1. Sixty to eighty percent lower fuel cost.
2. No stand-by losses.
3. Lower maintenance costs.

Westinghouse engineers will make a study of your operating conditions to determine where you can best apply oil-electric locomotives to effect the greatest savings.

Baldwin-Westinghouse oil-electric locomotives are available in 300, 400, 600 and 800 horsepower sizes.

THE BALDWIN LOCOMOTIVE WORKS, PHILADELPHIA, PENNSYLVANIA

WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY
EAST PITTSBURGH PENNSYLVANIA

Baldwin-Westinghouse

T 30569

including present concrete tanks, for 5,864,000 bushels. It will be able to receive 32 cars an hour and have a delivering capacity of 200,000 bushels an hour. Preliminary plans for the structure have been approved and the designing engineers, Horner & Wyatt of Kansas City, are now working on the final plans. After letting contract it is estimated that the construction of the elevator will require about nine months.

WEST VIRGINIA.—Foster. The Baltimore & Ohio has let a contract to the Pittsburgh-Des Moines Steel Co., Pittsburgh, for a water treating plant here.

—Jacksonburg. The Pittsburgh-Des Moines Steel Co. has a contract from the B. & O. for a water treating plant here.

WYOMING.—Laramie. The Union Pacific plans to spend $200,000 enlarging its tie plant and installing some new machinery here. It will treat more than a million ties a year.

Locomotive Orders

Orders for locomotives have taken quite a jump since the May issue due largely to the orders placed by the New York Central Lines. The reports of the A.R.A. show that on May 1, there were 346 locomotives on order and that new locomotives placed in service during the first four months of this year totaled 166. On this basis it is likely that orders for the first six months of 1929 will about equal the total orders placed in 1928; which, it must be remembered, however, was the poorest year in the last 25 with the exception of 1919 and 1921.

Locomotives in need of repair on Class I roads May 15 totaled 8,511 or 14.8 per cent of the number on line, 8.1 per cent in need of classified repairs and 6.7 per cent in need of running repairs, an increase of 454 compared with May 1, at which time there were 8,057 or 14 per cent. Serviceable locomotives in storage, May 15, totaled 5,618 compared with 5,675 on May 1.

The American Locomotive Company received the following orders: New York Central, 75 Hudson type and 75 Mohawk type; Chicago, Indianapolis & Louisville, ten 2-8-2 type; Mississippi Central, one 2-8-2 type; Rutland, three 4-6-2 type. Baldwin received orders from the Chicago & Illinois Midland for two 2-10-2 type, and the Royal State Railways of Siam for six 4-6-2 type. Ingersoll-Rand and General Electric received orders from the Erie for one oil-electric switcher, and Foley Brothers, St. Paul, for one oil-electric switcher.

The Litchfield & Madison is inquiring for from one to three 2-8-2 type; Humble Oil & Refining Co., one switcher; Tennessee Central, four 2-8-8-2 type. The Chilean State Railways will receive bids at Santiago, Chile, for 12 4-8-2 type until July 5. It is reported that the St. Louis Southwestern is in the market for 20 locomotives.

Passenger Car Orders

Orders for passenger cars placed since the May issue of Transportation include the following: Great Northern, one dining car with Pullman Car & Mfg. Corpn.; Hartford Eastern Railway Co., one combination passenger and baggage gasoline motor car with J. G. Brill Co.; Hocking Valley, two dining cars with Pullman Car & Mfg. Corpn.; New York Central, 20 steel underframe passenger coach bodies and five steel underframe passenger and baggage car bodies with American Car & Fdy. Co.; New Haven, three multiple unit motor cars and six multiple unit trailer cars with Standard Steel Car Co.; Northern Pacific, ten baggage and mail cars with American Car & Fdy. Co.; Reading Company, one passenger trailer car with J. G. Brill Co.; Southern Pacific, 12 gas-electric rail motor cars with Pullman Car & Mfg. Corpn., seven gas-electric with J. G. Brill Co., two gas-electric with Standard Steel Car Co., and 15 chair cars with Pullman Car & Mfg. Corpn.; Sperry Development Co., one special gasoline motor car with J. G. Brill Co.; Washington, Baltimore & Annapolis Electric Railroad, nine trailers with J. G. Brill Co.; Atlanta & West Point, eight mail and baggage cars with American Car & Fdy. Co.

The Chicago & North Western is inquiring for five steel horse cars; New Haven, 15 baggage and mail cars, 70 coaches, 24 smoking cars, six smoker-baggage cars and twelve steel underframes for wooden baggage cars; Pennsylvania, three dining cars and four cafe cars. The Ferrocarril Terminal Central de Buenos Aires is inquiring through Dwight P. Robinson of Argentine, Inc., for 50 steel passenger cars for subway service. It is reported that the City of Toronto is planning to purchase 110 new cars and the Pennsylvania, 25 horse express cars.

Freight Car Orders

Class I railroads had 143,617 freight cars in need of repair May 15, or 6.5 per cent of the number on line, according to reports filed by the carriers with the car service division of the A.R.A. This was an increase of 1,074 cars over the number reported on May 1, at which time there were 142,543 cars or 6.5 per cent. Freight cars in need of heavy repairs on May 15 totaled 102,169 or 4.6 per cent, an increase of 641 compared with May 1, while freight cars in need of light repairs totaled 41,448 or 1.9 per cent, an increase of 433 compared with May 1.

The Anglo-Mexican Petroleum Co., Ltd., is inquiring for ten tank cars; Central of New Jersey, 200 steel gondolas; Detroit Edison Co., five gondolas and five hopper cars; Inspiration Consolidated Copper Co., four air dump cars; International Harvester Co., 13 side dump hopper cars; Manila Railroad, 100 flat cars and 100 box cars; Pennsylvania, 50 all-steel caboose cars; Pittsburgh Steel Co., 10 gondolas; Rock Island, 300 gondola car bodies; Delaware & Hudson, repairs to 150 composite hopper cars; Fruit Growers' Express, 500 steel underframes. The National Railways of Mexico is reported to be inquiring for 800 box cars.

The Baltimore & Ohio ordered 1000 gondola cars from the American Car & Fdy. Co., 1000 hopper cars from the Bethlehem Steel Co., 1000 hopper cars, and 2000 box car bodies from Standard Steel Car Co.; Chicago & Alton, repairs to 130 box cars at its own shops; Chicago, North Shore & Milwaukee, one caboose car from American Car & Fdy. Co.; Erie, 25 caboose cars from Magor Car Corpn.; New Cornelia Copper Co., 50 ore cars from Koppel Industrial Car & Equipment Co.; New York, Chicago & St. Louis, 250 gondolas from American Car & Fdy. Co., and 500 automobile cars from Standard Steel Car Co.; North Western Refrigerator Co., 650 refrigerator cars from American Car & Fdy. Co.; Northern Pacific, 200 flat cars from Pressed Steel Car Co., and 100 stock cars from own shops; Pennsylvania, 1000 box cars from Altoona shops; Union Pacific, 500 automobile cars from Ralston Steel Car Co.; Virginia-Carolina Chemical Corpn., five tank cars from General American Tank Car Corpn.; Wichita Falls & Southern, 15 ballast cars from Rodger Ballast Car Co. It is reported that the Canadian Pacific has ordered 500 flat cars. The Columbus & Greenville is said to have ordered 300 box cars from American Car & Fdy. Co.

Bus & Truck Orders

Recent bus and truck orders include the following: Boro Buses Inc. of Red Bank, N. J., three 29-passenger Mack city type buses; Burlington Transportation Co., four 21-passenger Yellow observation coaches; Canadian-New York Coach Lines, two Twin Coach parlor coaches; Chicago, Milwaukee, St. Paul & Pacific, two Type Z-240 Yellow coaches; Connecticut Company, one Mack bus chassis; Cornwall Public Service Corpn., Cornwall, N. Y., one 29-passenger Mack city type bus; Detroit Motorbus Co., four Twin Coach urban coaches; Gloucester Autobus Co., four Twin Coach urban coaches; Ham-

New Office Buildings

FOR THE SOUTHERN...

RECENT additions to the facilities of the Southern Railway are the large office building additions which we recently built at Atlanta.

We added five new stories to the Freight Depot Office Building and two to the Office Building, thereby more than doubling the office space.

Construction operations were carried on with practically no disturbance to the occupancy and use of the original floors.

The work was completed in less than six months.

UNITED ENGINEERS & CONSTRUCTORS
INCORPORATED
DWIGHT P. ROBINSON, PRESIDENT

NEW YORK PHILADELPHIA NEWARK CHICAGO
ATLANTA LOS ANGELES BUENOS AIRES RIO DE JANEIRO MONTREAL

MAXIMUM RETURN TO CLIENTS PER DOLLAR INVESTED

burg Railway Co. of Buffalo, four Mack buses; Illinois Power Co., Springfield, three 25-passenger Mack city type buses; Interstate Coach Co., Spokane, one Type W Yellow observation coach; Interstate Transit Inc. of Cincinnati, six 29-passenger Mack parlor car buses; Iowa Southern Utilities Co., Centerville, nine 25-passenger Mack city type buses; Kentucky Utilities Co., Louisville, four city service type coaches; Kings Coach Co., Brooklyn, one 25-passenger Mack city type bus; Lang Transportation Co., four Twin Coach urban coaches; Los Angeles Motor Coach Co., four Twin Coach urban coaches; Northern Ohio Power & Light Co., Akron, 17 Twin Coach urban coaches, 10 Twin Coach suburban express and two Twin Coach parlor coaches; Pittsburgh Motor Coach Co., four 21-passenger observation coaches; Reading Transportation Co., two Mack observation coaches; Rochester Interurban Bus Co., four Mack bus chassis; Southern Pacific Motor Transport Co., Portland, three Twin Coach parlor coaches; Syracuse Railway Coordinated Bus Line, five Mack Model AB chassis and four Mack Model BK chassis; Tennessee Electric Power Co., two Twin Coach urban coaches; Tompkins Bus Corpn. of Staten Island, 24 29-passenger Mack city type buses; Twin City Rapid Transit Co., St. Paul, three Mack chassis; Union Pacific, one Mack chassis; Union Street Railway Co., New Bedford, two city type and two parlor coaches; Virginia Beach Bus Line of Norfolk, one 29-passenger Mack parlor car bus; Charles Vollmer, Amsterdam, N. Y., one 29-passenger Mack parlor car bus; Buffalo & Erie Coach Co., Fredonia, two Mack Model BB bus chassis.

Changes in Personnel

Executive & Operating

K. R. Vought, superintendent of the St. Louis division of the Pennsylvania, with headquarters at Terre Haute, has been appointed superintendent of the Baltimore division to succeed **George M. Smith. R. P. Graham**, superintendent of the Delaware division, with headquarters at Wilmington, succeeds Mr. Vought at Terre Haute. **W. R. Davis**, master mechanic of the New York division, succeeds Mr. Graham.

The Alabama, Tennessee & Northern announces that **J. A. Caviezel**, general manager, at Mobile, has been appointed vice president and general manager with the same headquarters. **J. T. Cochrane, Jr.**, general freight agent in charge of solicitation, with headquarters at Mobile, has been appointed vice president and traffic manager.

The Canadian National announces that **A. H. Cavanagh**, assistant superintendent at Hamilton, has been appointed superintendent of the Hornepayne division, at Hornepayne, Ont., to succeed **J. E. Nelson**, deceased.

F. A. Clifford, assistant superintendent of stations and claim prevention of the Missouri Pacific, with headquarters at St. Louis, has been appointed special assistant to the vice president and general manager. **F. C. Tedford** has been named to succeed Mr. Clifford.

The Louisville & Nashville announces that **E. O. Saltmarsh**, superintendent of the Pensacola division at Pensacola, has been appointed assistant to the general manager, with headquarters at Louisville. **E. W. Speed**, freight agent at

AN ADDED BURDEN

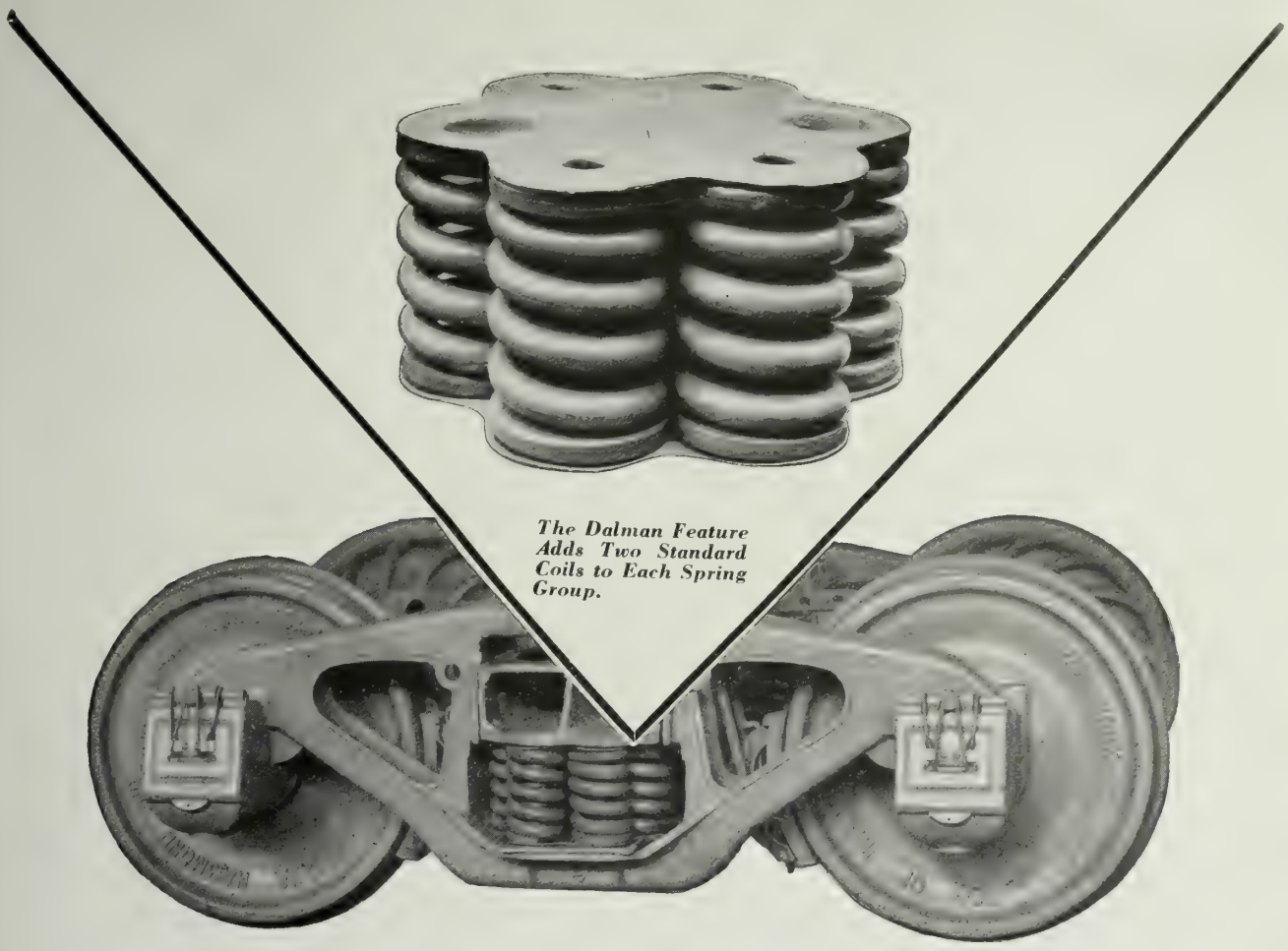
The Great Northern and Western Pacific propose to build 200 miles of new railway in Oregon and California which will substantially duplicate new lines in which Southern Pacific has invested more than $40,000,000 since 1923.

That a surplus of railway lines means increased operating expense and reduced earnings is incontestable. That it would entail impaired service also seems apparent.

In view of the principle, embodied in the National Transportation Act, to permit railways to earn a reasonable return upon their investments, it would appear that large sums unnecessarily or unwisely invested by the railroads would likely have an unfavorable reaction upon our present railway rates.

The Great Northern and Western Pacific companies have shown no definite benefits to be derived from their proposed line, and its construction would provide no service not already adequately and satisfactorily provided over shorter existing routes.

SOUTHERN PACIFIC



Faster Schedules—Heavier Car Loadings —Demand This Added Protection

Freight car *roadability* is an important factor in these days of fast service. Heavily loaded cars, hauled at speeds approaching passenger train schedules, must be adequately equipped to absorb the greater road shocks that come with high speed service.

Such is the type of duty for which Bettendorf (Dalman Type) "One Level" Trucks are designed. Ample reserve spring capacity is provided by a single cluster of standard coils—all on the same level and each spring carrying its share of the total load. This modern truck design provides maximum protection to your customer's goods while in transit, and because of its wide margin of safety eliminates overloaded and broken springs and keeps the rolling stock in efficient revenue earning condition.

THE BETTENDORF COMPANY

OFFICES AND WORKS BETTENDORF, IOWA

Pensacola, has been appointed to succeed Mr. Saltmarsh.

G. H. Sido, general manager of the Ann Arbor, with headquarters at Toledo, has been appointed general mananger of the Wabash, with headquarters at St. Louis. Mr. Sido succeeds **S. E. Cotter,** who retains the title of vice president in charge of operations.

J. C. Albright, assistant superintendent on the O. R. & N., with headquarters at Portland, Ore., has been appointed assistant to the general manager to succeed **C. G. Sutherland,** retired because of ill health.

C. L. Hinkle, general manager of the Chicago Great Western, has been appointed vice president in charge of operation, with headquarters at Chicago. Mr. Hinkle began his railroad career as a waterboy on the Evansville & Terre Haute, and his first promotion was to a job as laborer in a stone mason's gang. Then he became a telegraph operator, station agent, and chief clerk in various departments. He was appointed assistant to the general manager of the Chicago & Alton; the Toledo, St. Louis & Western; the Iowa Central, and the M. & St. L. combination in 1905, and later, assistant to the vice president. He became superintendent of the Toledo, St. Louis & Western in 1912 and general superintendent in 1916. He accepted a majority commission in the transportation corps of the army in 1918 for active duty in France, serving as general superintendent of the 15th Grand Division, and shortly after the armistice was made general manager of the transportation activities in France. Mr. Hinkle is entitled to wear the ribbon of the Legion of Honor of France and the insignia of the American Distinguished Service Medal, awarded to him for service overseas. He was honorably discharged with the rank of colonel and is now a colonel in the reserve corps of the army. Mr. Hinkle was appointed general manager of the Chicago Great Western on May 1, 1920.

Charles L. Hinkle.

Frank J. Fell, Jr., controller of the Pennsylvania, with headquarters at Philadelphia, has been appointed vice president and controller. He will be in charge of all accounting, which now becomes a separate executive department, and will continue to discharge the duties of the controllership. **Elmer Hart,** assistant controller, has been appointed deputy controller.

Financial & Legal

Edward Ross has been appointed auditor of freight and passenger revenues of the Lackawanna, with headquarters at Scranton, Pa., to succeed **J. M. Coddington,** deceased.

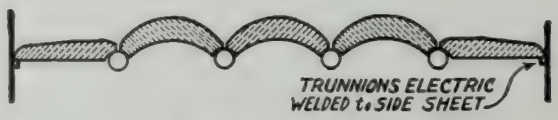
The Illinois Central announces that **L. A. Harkness,** general auditor, has been appointed assistant controller, with headquarters at Chicago, to succeed **W. D. Beymer,** deceased. **R. E. Kimbell,** auditor of miscellaneous accounts, has been named to succeed Mr. Harkness, and the position of auditor of miscellaneous accounts has been abolished.

F. W. Middleton, assistant claim agent

TRUE ECONOMY

Can be Secured in Steam Locomotives

by the use of



ECONOMY BAFFLE WALLS

THEY INSURE MAXIMUM LIFE OF BRICK WITH A MINIMUM WEIGHT ON THE ARCH TUBES

THE ECONOMY METHOD of SUPPORTING SIDE BRICK on TRUNNIONS ELECTRICALLY WELDED to the SIDE SHEET ELIMINATES the liability of the side brick dropping into the fire bed and the necessity of straightening or replacing bent arch tubes.

THE ECONOMY METHOD provides radiant heat near the side sheets, causing more complete combustion in this "COLD" area. It also PREVENTS the accumulation of coke and slag in the "pockets" resulting when inclined side brick are used, thus increasing the active firebox heating surface.

ECONOMY ARCH COMPANY

1843 RAILWAY EXCHANGE BUILDING **ST. LOUIS, MISSOURI**

Distributors of Locomotive Arch Brick Manufactured by
EVANS & HOWARD, LACLEDE-CHRISTY, A. P. GREEN and NILES FIREBRICK COMPANIES

Let's travel by this Route
they have such comfortable seats

A trip is planned . . . a vacation . . . days of idleness, peace, relaxation and comfort. But how are they to get there? Which route will they take?

Naturally, they give the preference to the most comfortable means of transportation and, other factors being equal, will choose the carrier with the most comfortable seats. Nothing is more conducive to comfort than roomy, spacious seats, ideally arranged in relation to lights, windows and heat. Your traveler of today wants the same ease, the same stretching room that he has in his own living room. And when he finds these luxuries he never forgets them.

Hale & Kilburn, for over half a century, have been catering to the tastes and comforts of passengers in every type of public carrier. And Hale & Kilburn Seating Engineers, if consulted while the car is still a project in mind, can guarantee that no other railroad will be given preference because of greater comfort.

H & K ROTATING CHAIR NO. 900—
A comfortab'e seat for comfort loving travelers

HALE & KILBURN SEATS

"A Better Seat for Every Type of Modern Transportation Service"

HALE & KILBURN COMPANY

General Offices and Works: 1300 Lehigh Avenue, Philadelphia

SALES OFFICES:

Hale & Kilburn Co., Graybar Bldg., New York
Hale & Kilburn Co., McCormick Bldg., Chicago.
E. A. Thornwell, Candler Bldg., Atlanta
Frank F. Bodler, 903 Monadnock Bldg., San Francisco
W. L. Jefferies, Jr., Mutual Bldg., Richmond
W. D. Jenkins, Praetorian Bldg., Dallas, Texas
H. M. Euler, 146 N. Sixth St., Portland, Oregon

of the Kansas City Southern, with headquarters at Texarkana, has been appointed claim agent of the Louisiana & Arkansas, with headquarters at Shreveport.

Purchases & Stores

L. C. Guernsey, assistant purchasing agent of the Illinois Central at Chicago, has been appointed assistant to the vice president, a newly created position. **Leonard L. King,** special assistant to the purchasing agent has been appointed assistant purchasing agent to succeed Mr. Guernsey, and will be succeeded by **P. C. Mayer,** office manager of the purchasing department.

The Canadian National announces that **H. L. Taylor,** assistant purchasing agent of the western region, with headquarters at Winnipeg, has been appointed purchasing agent, with headquarters at Vancouver to succeed **C. C. Labrie,** resigned.

E. J. Lamneck, assistant purchasing agent for the Pennsylvania at Philadelphia, has been appointed fuel purchasing agent to succeed **B. P. Phillippe,** deceased. **C. L. McIlvaine,** assistant stores manager, succeeds Mr. Lamneck. **James Young,** supervisor in the purchasing department, and **Wade N. Kuhn,** assistant fuel purchasing agent, have been appointed assistant purchasing agents. **G. H. Schultz,** assistant purchasing agent at Pittsburgh, has been appointed assistant fuel purchasing agent at Philadelphia. **S. A. Montgomery,** supervisor in the purchasing department, has been appointed assistant to purchasing agent. **E. B. DeVilbiss,** superintendent of motive power, New Jersey division, has been appointed assistant stores manager.

Oscar Townsend.

C. W. Kinnear, assistant general storekeeper at Altoona, has been appointed assistant general storekeeper at Philadelphia. **O. B. Mills,** assistant general storekeeper, has been appointed assistant to general storekeeper. **O. V. Daniels,** general storekeeper at Altoona, has been made works storekeeper there. **W. L. Oswalt,** assistant general storekeeper at Altoona, has been made assistant works storekeeper.

Traffic

Oscar Townsend, traffic manager of the Chicago Great Western, with headquarters at Chicago, has been elected vice president in charge of traffic. Mr. Townsend was born at Cleveland, attended the public schools of that city, and was graduated from the University School of Cleveland. He entered railway service as a rate clerk for the Cleveland, Lorain & Wheeling (now a part of the B. & O.) at Cleveland. Later he went to the Canadian Pacific at Pittsburgh in the same capacity, was promoted to traveling freight agent, and then took a similar position with the Milwaukee. Mr. Townsend entered the service of the Chicago Great Western as general agent at Pittsburgh, was promoted to assistant general freight agent at St. Paul, to general freight agent at

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COLUMBUS, OHIO

Builders of Freight Cars for a Quarter of a Century

Chicago and to traffic manager in charge of freight and passenger traffic.

George M. Smith, general agent and superintendent of the Pennsylvania at Baltimore, has been appointed general agent, and has been relieved of the duties of superintendent to allow him to devote his full time to the direction of the company's general interests in Baltimore.

J. F. Hogan of Chicago has been appointed vice president in charge of traffic of the Western Pacific. Mr. Hogan has been vice president of the Chicago & Western Indiana and of the Belt Railway of Chicago. Besides having a wide experience in railroad traffic matters he has a first-hand knowledge of the West, having represented the El Paso & Southwestern in California until he became a traffic official of that system in Chicago. Later he was general freight agent of the Rock Island in Chicago until he became vice president of the Chicago & Western Indiana and the Belt Railway.

H. E. Redlingshafer, passenger traffic agent of the Chicago Great Western at Dallas, has been appointed assistant general passenger agent at Kansas City to succeed **E. W. Ireland.**

P. C. McCormick, district freight agent for the Baltimore & Ohio at Chicago, has been appointed assistant general freight agent to succeed **J. W. Melone**, retired because of ill health.

Arthur E. Gilman has been appointed manager of industrial development of the M.-K.-T. with headquarters at St. Louis. **Herbert L. Browne**, assistant general freight and passenger agent at Houston, has resigned.

Henry W. Beyers, freight traffic manager of the Chicago & North Western has been elected vice president in charge of traffic with headquarters at Chicago to succeed **A. C. Johnson. S. F. Miller**, assistant freight traffic manager, has been appointed to succeed Mr. Beyers as freight traffic manager at Chicago. **August F. Cleveland**, assistant freight traffic manager at Chicago has been appointed to the newly created position of vice president in charge of rates and divisions.

Earl W. Ireland, assistant general passenger agent of the Chicago Great Western, whose promotion was announced in the May issue of Transportation.

C. A. Skog, assistant general freight agent of the Grand Trunk Railway at Chicago, has been appointed assistant general freight agent, at Detroit, lines in the United States, west of the Detroit and St. Clair Rivers. **H. W. Ploss**, division freight agent at Milwaukee, and **L. A. Veroneau**, chief of the tariff bureau at Chicago, have been appointed assistant general freight agents at Chicago. **J. I. Deans** has been appointed division freight agent at Milwaukee to succeed Mr. Ploss. **William A. Gray** has been appointed chief of the tariff bureau to succeed Mr. Veroneau. **D. G. Sheehan** has been appointed general agent at Milwaukee.

The Panhandle & Santa Fe announces that a division freight and passenger agency has been established at Clinton, Okla. **T. A. Cushman** has been appointed division freight and passenger agent, and **F. B. Little**, and **C. R. Winters**,

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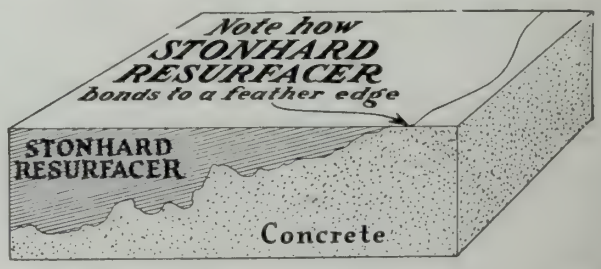

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traveling freight and passenger agents.

L. L. Hyde, general freight agent of the Nickel Plate at Cleveland, retired June 1, having been with that company 25 years.

William W. Richardson, assistant to the passenger traffic manager of the Pennsylvania at St. Louis retired June 1 having reached the age of 70 on May 9.

E. W. Long, assistant general freight agent of the Seaboard Air Line, at Charlotte, N. C., has been appointed assistant freight traffic manager with headquarters at Norfolk. **L. P. King** has been named to succeed Mr. Long at Charlotte.

Mechanical

J. D. Barnhart, superintendent of the Decatur shops of the Illinois Terminal Railroad, electrified lines, has been appointed superintendent of the car department, both steam and electric lines.

Adam La Mar, master mechanic of the Chicago Terminal division of the Pennsylvania, has been transferred to the Williamsport division, with headquarters at Williamsport. He will be succeeded at Chicago by **W. B. Porter**, assistant engineer of motive power in the office of the general manager of the eastern region at Philadelphia.

F. J. Swanson, general car foreman, eastern lines, of the Milwaukee, has been appointed district master car builder, with headquarters at Minneapolis.

W. D. Arter, master mechanic of the New York Central at Watertown, N. Y., has been transferred to Corning, N. Y., and the position of master mechanic at Watertown has been abolished. **G. W. Caley**, master mechanic at Corning, has been transferred to Utica, and **A. D. Bingman**, master mechanic at Utica, has been transferred to Harmon.

Civil

H. E. Boardman has been appointed construction engineer of the Boston & Maine at Boston to succeed **C. J. Griffin**, who is on a leave of absence.

The Missouri Pacific announces that leave of absence has been granted **A. A. Miller**, engineer of maintenance of way with headquarters at St. Louis. He will be succeeded temporarily by **W. H. Vance**, assistant engineer of maintenance of way. **R. M. Smith**, division engineer at Wynne, Ark., has been appointed to succeed Mr. Vance at St. Louis. **C. J. Jaeschke**, assistant engineer at Pueblo, Colo., has been appointed to succeed Mr. Smith at Wynne.

G. A. Phillips, engineer maintenance of way of the Lehigh Valley at Bethlehem, Pa., has been named chief engineer of maintenance.

Obituary

J. H. Hiland, vice president of the Milwaukee from 1903 to 1918, died May 21 at Chicago. Mr. Hiland was 81 years of age. He began with the Milwaukee in 1858 at Janesville as a locomotive fireman. From there he went with John Lawlor to build the first bridge across the Mississippi at Prairie du Chien, and then to Milwaukee as clerk in the general offices of the road. When the Western Wisconsin (afterward the Omaha) was building into St. Paul Mr. Hiland joined it as frontier agent, and when the road reached St.

J. H. Hiland.

Paul in 1879 he was appointed the first general freight agent, becoming general traffic manager in 1881. He was appointed the first chairman of the Western Passenger Assn. in 1885 and general manager of the Minneapolis Millers Assn. in 1886. Mr. Hiland joined the Milwaukee again as general agent at Kansas City in 1887, was made general freight agent at Milwaukee in 1889, general traffic manager in 1895, and vice president in 1903.

T. W. Coe, superintendent of motive power of the New York, Chicago & St. Louis, died in Cleveland on May 18, following an operation for appendicitis. Mr. Coe was born at Norwalk, O., in 1879. He entered the service of the Lake Shore & Michigan Southern (now part of the New York Central) when he was 17 years old as a machinist's apprentice at Norwalk. At the end of a four-year apprenticeship he was transferred to the Collinwood shops at Cleveland as a machinist. He was then with the Wheeling & Lake Erie as locomotive foreman at Dillonvale from 1901 to 1904 when he became passenger enginehouse foreman for the Lake Shore at Elkhart, Ind. Mr. Coe served as night general foreman at Chicago, as general foreman over both passenger and freight enginehouses at Elkhart, and as superintendent of shops at Elkhart. He was then appointed master mechanic for the Indiana Harbor Belt at Chicago and, later, master mechanic at Conneaut, O., for the Nickel Plate. He was made superintendent motive power on February 1, 1927.

A. Munster, bridge engineer and chief engineer of the Chicago Great Western from 1900 to 1906, died at Seattle May 13, aged 75.

B. P. Phillippe, fuel purchasing agent of the Pennsylvania at Philadelphia, died May 2, aged 58, at Strafford, Pa., following an illness of several months.

Joseph A. McGowan, railway executive of Indianapolis, died May 13, aged 69. He had been acting president of the Indianapolis Street Railway and the Terre Haute, Indianapolis & Eastern Traction Co. since the death of **Robert I. Todd** last July.

P. J. Landers, superintendent of the Indianapolis Union at Indianapolis, died there May 25.

Harry Hunter Schroyer, vice president of the Morton Mfg. Co., died at his summer home near Hayward, Wis. May 11. Mr. Schroyer was born in Lock Haven in 1862. He went to Chicago in 1896, joined the Chicago & North Western and remained there until 1903, when he resigned to enter the railway supply field. Shortly afterward he organized the Acme Supply Co. The corporate name was changed in 1917 to Dunbar Mfg. Co., and, in 1920, to Morton Mfg. Co. Although Mr. Schroyer, due to failing health, has been inactive the past 12 years, his many friendships, particularly in the railroad field, were closely maintained to the last.

T. W. Newburn, district engineer of the Westinghouse Air Brake Co., with headquarters at Washington, D. C., died April 26 while on a train going to the Air Brake Assn. convention at Chicago.

Carlton C. Crane, who for 39 years was general passenger agent on the Pacific Coast for the New York Central, died at his home in San Jose, Calif., May 21. Mr. Crane was 68 years of age.

Asa Fred Batchelder, formerly engineer of the railway locomotive department of the General Electric Co., who retired in 1925 after 36 years' service, died at Albany, May 20, from a heart attack.

E. M. Fairfield, assistant to the executive vice president of the Burlington, with headquarters at Chicago died May 3 at St. Luke's hospital in that city.

Jotham M. Coddington, auditor of freight and passenger revenues of the Lackawanna, died May 11.

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Are giving excellent service under severe traffic conditions on Railroads using them.

Twenty years successful service by CONLEY TYPE FROGS have demonstrated their merit for safe and economical service.

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Supply Trade Notes

J. L. Engels.

The Alemite Mfg. Corpn. announces the purchase of the Dot lubricator division of the Car Fastener Co., Cambridge, and consolidation with its railroad department.

The American Brown-Boveri Electric Corpn. has organized, in order to place all electrical and mechanical operations exclusive of shipbuilding under one management, a subsidiary corporation to be called the **American Brown-Boveri Co., Inc.** The company manufactures machinery and electrical devices under the patents of Brown Boveri & Co., Ltd. of Switzerland.

The Timken Roller Bearing Co., Canton, O., announces that **Marcus T. Lathrop**, vice president and general manager in charge of operation and sales has been elected president succeeding **H. H. Timken**, who has been elected chairman of the board. **J. W. Spray**, vice president and general sales manager, and **A. C. Ernst** of Cleveland, have been elected directors.

J. L. Engels, sales promotion manager since 1925 for the commercial car division of **the Studebaker Corpn. of America**, has been appointed western division commercial car representative, with headquarters at San Francisco. Mr. Engels will have charge of sales in the Portland, San Francisco and Los Angeles branches. He had been manager of the new business department of the Commercial Investment Trust Co. of Chicago.

The Worthington Pump & Machinery Corpn., announces that **D. S. Ellis**, assistant engineer of motive power, New York Central, has been appointed eastern district sales manager of the railroad division, with headquarters at the Harrison, N. J. works.

J. D. Wallace & Co., Chicago, manufacturers of portable woodworking machinery, has taken over the **John T. Towsley Mfg. Co.** of Cincinnati, manufacturers of large woodworking machinery and factory trucks. The Towsley Co. will continue to operate under its own name, as a separate corporation, a division of J. D. Wallace & Co.

A. J. Gates, who was appointed director of sales of the industrial truck division of the **Baker-Raulang Co.** last December, has been elected vice president. After graduation from the electrical engineering school of Purdue University, Mr. Gates spent nine years with the General Electric Co. as a sales engineer. Then he joined the Baker organization and represented it in the Cleveland and Detroit territories for 11 years. He has had wide experience in the sale and application of time and labor saving equipment to industrial plants.

A. J. Gates.

Charles D. Morton, secretary of the **Morton Manufacturing Co.**, Chicago, has been elected vice president succeeding **H. H. Schroyer**, who died May 11. Mr. Morton was born in Chicago in 1894 and received his early education in Chicago public schools and Culver Military Academy, from which school he was graduated in 1913. He then attended the University of Wisconsin and was graduated there in the class of 1917.

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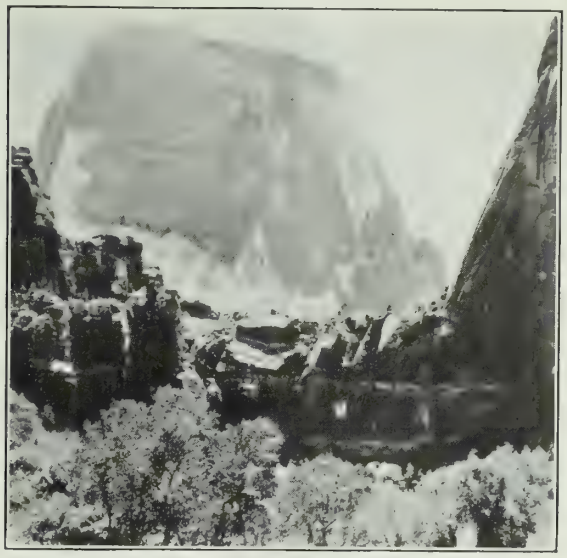

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Union Pacific

THE OVERLAND ROUTE

6-1

Immediately thereafter he entered the U. S. military service. At the end of the war he was serving as first lieutenant of the 40th Infantry, in the 14th Division. After his discharge he joined the Morton Co. and was elected secretary in 1920. He has been very active in the conduct of the company's affairs during the past ten years.

L. A. Osborne, president of the **Westinghouse Electric International Co.**, announces that an electrical manufacturing company will be organized with Schneider et Cie, a French steel works company, to specialize in electric power apparatus, electric locomotives and ship propulsion machinery. The present factory of the Schneider company will be used and cash investments will be made by that company and the Westinghouse concern for expansion and working capital. The new company will manufacture under patents and licenses of the Westinghouse company.

Frederick A. Stevenson, assistant vice president of the **American Car & Foundry Co.**, has been elected a director and vice president in charge of operations, with headquarters at New York, to succeed **William C. Dickerman**, who has been elected president. Mr. Stevenson joined the American Car & Foundry as a mechanic immediately after his graduation from high school in Detroit. He was made master mechanic of the Detroit plant in 1907 and assistant general manager of the company in 1916, with supervision of the Detroit plant, where large supplies of munitions were being manufactured for the allied armies. When, after the United States entered the war, the facilities of the Detroit and Depew plants were used for making munitions for American forces, Mr. Stevenson was placed in charge of these activities. He was appointed assistant vice president in 1919 and transferred to New York, being placed in charge of manufacturing at all car plants, foundries and rolling mills operated by the American Car & Foundry Co.

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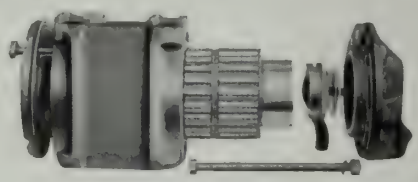

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Transportation

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Vol. V July 1929 No. 1

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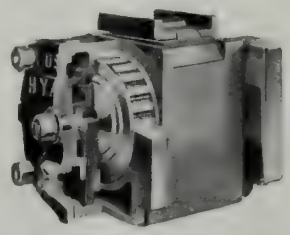

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Transportation

(Reg. U. S. Patent Office)

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LITTLE STORIES ABOUT BIG MEN

THE NEWS OF THE MONTH

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Delivering The Goods On The Boston And Albany

Main line freight locomotives operate between Selkirk, New York and Beacon Park, Allston, Massachusetts, a distance of about 190 miles; the scheduled time is ten hours and it is not at all unusual for the engines to make the trip in less time than that. The first lot of 25 engines was delivered about three years ago, and the second lot about two years ago. These 45 engines took the place of about 60 engines of different types such as Mikado, Santa Fe and Consolidation engines.

The average freight speed has increased about ten per cent. The average freight load has increased about 25 per cent and the increase in gross ton miles per train hour has been about 40 per cent.

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President R. H. Aishton of the American Railway Association Opens Tenth Yearly Convention of Division V at Los Angeles, July 25. Left to Right: Secretary V. R. Hawthorne; A. R. Ayers, Vice-Chairman; Mr. Aishton, and G. E. Smart of Montreal, Chairman of the Division.

It Was A Hard-Working Convention

Division V On the Job at Los Angeles

By George Elliott

PERHAPS it was the famous climate, or it may have been just the well known hospitality of Californians, but whatever it was, something in the closing days of June got two large conventions of the American Railway Association, Division V at Los Angeles and Division VI at San Francisco, to do more hard work, attend the meetings in larger numbers and still have a better time than in similar meetings in other years. The record shows it, the delegates say so, and we believe it.

There are remarkable differences in conventions and in the way the delegates conduct themselves. Some convention comes to town, you know, and howls itself hoarse night and day in hotel lobbies and literary gatherings, while a few level headed, non-alcoholic gentlemen attend to the business for which the meeting was called. Another association in the same city holds two sessions a day with a big attendance at both, attends strictly to business, while committees take good care of the wives and sweethearts, and the outfit goes home at the proper time with a complete record of what has been going on. Not a headache in the whole show.

Early in June Los Angeles entertained a very large convention, probably more than 100,000 men and women. As usual a comparatively small number of delegates did all the work. The remainder entertained itself boisterously in various parts of the city and surrounding resorts. Some of the entertainment was a little noisy; not, however in violation of city ordinances in such cases made and provided especially for tired visitors.

Division V, always an aggregation of serious men, seemed on this occasion, in Los Angeles, determined to exceed all previous records for good work accomplished. They were a fine lot of competent business men.

It must be realized that it was in many cases, even for railroad men, quite a trip across a continent to attend this convention. Having reached their journey's end it became evident immediately that while the wives and children romped all over the scenery the fathers would attend to business at the Hotel Alexandria. They did precisely that. Not one session was neglected. The ballroom was fully occupied at every hour. The reports were listened to attentively and afterward were discussed intelligently. Indeed, it would have been difficult to find men anywhere more consistently attentive to business.

This railway convention at Los

The U. P. Band Entertained on the Trip to Catalina and on the Island.

Angeles was entirely a new experience for Californians. As the division never had met west of the Mississippi in the 60 years of its existence many of the delegates never had visited the Pacific Coast. Going to Chicago and Atlantic City had become an old story to them, but it was, however, something else again when the divisions decided to meet in California this year, a decision that stirred the membership to new and unusual enthusiasm. Wives everywhere developed suddenly an extremely lively interest in the A. R. A. In some cases, indeed, they became solicitous about their husbands' health while far from home. It didn't seem quite the right thing after agreeing solemnly, before a regularly ordained minister at home — or perchance a justice of the peace—to cling to a man through sickness and health, and forsaking all others to hang on till further orders, and then coldly to abandon him just as stern duty made it necessary for the big boy to go to California. No loyal wife would neglect her duty in such circumstances. No wife who could move both feet and speak coherently thought for a moment of neglecting such a duty. Apparently too, they all came, and by the same token they all seemed to have a rattling good time which, be it understood, is not a reflection upon the motor car they used.

Some form of divertissement was arranged by the Los Angeles railroad committees for every day for the women and for every evening for the whole crowd, and this included, of course, hundreds of railway supply men who were the guests of Division V this year.

The first session of the tenth yearly convention began on time in the ballroom of the Hotel Alexandria at 9:30 Tuesday morning, June 25, presided over by G. E. Smart of Montreal, chief of car equipment, Canadian National Rys., chairman of the division. Mr. Smart introduced R. H. Aishton, president of the American Railway Association, the first speaker and the only one on the day's program who was on the job, so much time was saved.

There are several kinds of speeches, as most men know who talk much in public, the speech with which you are credited in the proceedings; the speech the newspapers say you make—and, take it from an old reporter, this always is wrong—the speech you *think* you make, which seldom is right, and the speech you write and forget to use. Mr. Aishton's speeches always are good. Unfortunately, he has to talk so much and so frequently, that he may be forgiven for repeating occasionally.

In the Los Angeles convention Mr. Aishton, speaking without notes, gave attention chiefly to the charms of California. Indeed, he made a much better Los Angeles speech than did the young lawyer sent by the mayor to represent him. The American people, Mr. Aishton said, are demanding better and better transportation. We have steam and electric railways, highway bus and truck, airways in the skies for mail, express and passengers, air-and-rail coordinated passenger service from coast to coast, and waterways.

"Gil" Ryder, President, Railway Supply Manufacturers' Assn. and Vice President Superheater Co. at Catalina.

Railroads, Mr. Aishton said, are not opposing any of these competitors. Instead they have adopted several and doubtless may adopt others.

It was a corking good extemporaneous speech, but here is what President Aishton actually said, if the Washington office is to be believed, and it is well worth keeping in the imperishable archives:

"Railroad systems are one gigantic laboratory in which millions of persons are engaged in an intensive war on waste. Practically every phase of railroad operation is being placed under the microscope, in an effort to detect means of bringing about improvements in operation, with a view of increasing efficiency and insuring the greatest utilization possible of the existing rail transportation facilities.

"Railroads were originally established in this country 100 years ago. In the past ten years, however, greater strides have been made from a mechanical and operating standpoint than in any previous quarter century.

"During the first 80 years of their existence, the railroads directed their attention more to the extension of their lines and to development of the transportation network than to the finer details of operation. This paralleled the growth of the country and the opening of new territory. It was one step in economic progress. In the past ten years, however, the railroads have largely concentrated their attention more from the extension of their lines to the more intensive utilization of their existing facilities, thereby bringing about increased efficiency and economy in operation. This development has been in line with the increasingly intensive commercial development of this country, especially since the war, and has also resulted from increased operating and construction costs. To meet the changed conditions, science has been recruited in greater degree than ever before.

"As a result of this changed order of things, the public is receiving the best rail transportation service ever accorded it, while the railroads have the satisfaction of knowing they are doing the job with an unprecedented degree of efficiency. Freight is being moved with less delay than ever before due to improved operating methods, better condition of equipment,

and greater cooperation on the part of the public. The slogan of the railroads today is 'Keep Trains Moving', and they are doing it. With locomotives of greater tractive capacity and larger freight cars, but both built without a corresponding increase in weight; with substitution, on lines where heavy traffic is to be found, of automatic signals and the telephone for the transmission of train orders for the old method of moving trains by written orders which required an engineman to stop every time in order to be told to proceed, the nation's commerce is being skillfully and expeditiously moved to market.

"Not only have the railroads been active in ferreting out leaks in their revenues due to inefficient methods, but the manufacturers of railroad supplies have been diligent in developing improvements of various kinds.

"One of the most spectacular experiments which the railroads are conducting will begin soon on the Southern Pacific in the mountains of northern California, and Oregon, where road tests will be conducted to determine what improvements can be made to the present system of air brakes. The railroads, under the direction of the mechanical division, have been conducting laboratory tests of airbrake devices at Purdue University for several years, but in the road tests, various types of airbrake equipments are to be subjected to actual operating conditions in order to determine which can best meet requirements or what improvements should be made.

"These tests, which, when completed, will have cost the railroads at least $2,000,000 and will be the most extensive ever conducted, are being made in the interest of increased safety and improved operating methods. When the present airbrake system was adopted, 50 and 60-car trains were the rule, but at the present time 100 and 150-car trains are in common use.

"Less spectacular have been the experiments which have brought about the greater utilization of locomotives by increasing the length of runs; fuel conservation; modification of specifications for steel rails and wheels with a view of improving their quality and durability, substitution of steel for wooden cars, re-arrangement of teminals and shops, improved methods of communication and signaling, reclamation, where economical, of old materials, greater standardization of freight cars, which reduces cost of repairs, simplification and reduction of stocks of materials and supplies, inauguration of better methods of crating and storing of freight in cars, thereby reducing loss and damage claims, and scores of other things which the railroads have done with a view of eliminating waste. All of these improvements have been of direct interest to the public, for not only have many of them contributed to increased safety, but they also have been instrumental in bringing about improved service to the shippers of this country and more economical operation of the rail lines".

Left to Right: John Lentz, Lehigh Valley; J. J. Hennessey, Chicago, Milwaukee, St. Paul & Pacific, and F. W. Brazier, New York Central at the Convention of the Mechanical Division of the A. R. A.

The afternoon of the first day was given to reading and discussing reports from several committees. F. W. Brazier, chairman of the committee on nominations, assistant to general superintendent of motive power, New York Central, said that as the terms of office of the chairman and vice chairman do not expire until June 1930, no nominations for those posts would be made. The following seven persons were chosen to fill vacancies on the general committee to serve until June, 1931:

F. H. Hardin, assistant to president, New York Central.
O. S. Jackson, general superintendent motive power and machinery, Union Pacific System.
J. S. Lentz, consulting master car builder, Lehigh Valley Railroad Co.
J. A. Power, superintendent motive power and equipment, Southern Pacific Lines in Texas and Louisiana.
A. G. Trumbull, chief mechanical engineer, Erie Railroad.
S. Zwight, general mechanical superintendent, Northern Pacific Railway.
W. L. Bean, mechanical manager, New York, New Haven & Hartford.

O. S. Jackson, General Superintendent of Motive Power, Union Pacific, Just After He Flew to Catalina.

More than 600 persons attended this first session. An interesting feature was the presence of three veteran railroad mechanics, whose total years of service with their respective companies reach 174 years. They were J. J. Hennessey, assistant superintendent of the car division, Chicago, Milwaukee, St. Paul & Pacific; John Lentz, master car builder, Lehigh Valley Railroad, and Frederick W. Brazier, assistant to general superintendent of motive power, New York Central. The combined ages of the three veterans total 239 years.

Mr. Hennessey, whose home is in Milwaukee, was born five miles from that city on March 5, 1847. He has been carpenter, car builder, foreman of construction, inventor of car appliances and prize winner for the best sleeping cars exhibited at Berlin and Paris exhibitions, as well as at the World's Fair in Chicago in 1893.

A similar record with the Lehigh Valley Railroad is held by "Daddy" Lentz, veteran of that road, whose

H. T. Bentley, Former General Superintendent M. P. & M., Chicago & North Western, on Catalina Boat.

Name	Title and Railroad
Bawden, Wm.	Supt. M. P. & Equip., Terminal R. R., St. Louis.
Black, W. G.	Mech. Asst. to Pres., Erie R. R.
Burton, T. L.	Air Brake Engineer, New York Central.
Chenoweth, E. G.	Genl. Fore., Rock Island Lines.
Coleman, C.	(Retired), Winona, Minn.
Combs, W. B.	(Retired), Macon, Ga.
Davis, J. H.	Electrical Eng., B. & O.
Depue, G. T.	M. M., Erie R. R.
Flynn, W. H.	G. S. M. P. & R. S., New York Central.
Greenwood, H. F.	Shop Supt., Norfolk & Western
Hoke, H. A.	Asst. Mech. Eng., Pennsylvania.
Jones, E. F.	M. M., Belt Ry. of Chicago.
Kinney, M. A.	Supt. M. P., Rocking Valley R. R.
Little, J. C.	(Retired), Chicago.
Lynn, Samuel	Supt. R. S., P. & L. E.
Machovec, E. E.	Mech. Supt., A. T. & S. F.
Miller, H. M.	M. M., Susquehanna & New York
Moore, B. R.	Supt. M. P., Duluth & Iron Range.
Reid, H. G.	Asst. G. S. M. P., Canadian National.
Ridgeway, H. W.	S. M. P., Colorado & Southern.
Riegel, S. S.	Mech. Engr., D. L. & W.
Rink, G. W.	Asst. S. M. P., Central of New Jersey.
Sternberg, A. S.	M. C. B., Belt Railway Co. of Chicago.
Wagoner, J. F.	Genl. Fore. car dept., G. F. & A.
Weitzel, H.	Supt., Mexican Pacific R. R.

home is at Bethlehem, Pa., where he has grown up with the industry of building railroad cars. In point of service he is a few months older than Hennessey. In point of years, he is the youngster of the two, having been born seven months later than the Milwaukee veteran.

Mr. Brazier, younger in both service and age than his compatriots, is, nevertheless, a veteran railroader with more than 50 years of active service to his credit. He lives in New York and is the author of a book of memoirs, covering that service.

The principal business for the second day was an early morning address by M. J. Gormley, chairman car service division, A. R. A., Washington, which proved exceptionally interesting and held the 600 to the last man. Charles Dillon, vice president and managing editor of Transportation, spoke of the importance of having all officials and employes constantly and accurately informed about the relationships existing between railroads and the public. Reports were submitted on car construction, arbitration, prices for labor and materials, tank cars, loading rules, safety appliances, including a report from H. A. Johnson, director of research; apprentice training, automotive rolling stock, electric rolling stock.

Chairman Smart from the general committee reported these persons elected life members of the division during the year; all had joined the division in 1909:

Thursday was set aside for entertainment. Division V and its families, the supply-men-guests and their families, and 200 or more from Division VI from San Francisco paid a visit to Catalina Islands, Bill Wrigley's ocean paradise, the finest outdoor demonstration of what may be done for the joy of the race if only it chews enough. Necessarily and obviously, not to say inevitably and naturally, practically every one did chew the Wrigley products that day, much to that gentleman's delight. Very nearly the entire crowd was photographed singly or in groups doing something, and there seemed to be something to do every minute of the day, riding in the glass bottomed boats, buying post cards and abalone shells and in every way enjoying themselves.

For many of the crowd the trip to the islands was the first ocean voyage, and for all such land lubbers every little movement had a meaning all its own. The Pacific was smooth all day, but even at its smoothest the beautiful ocean has a swelling action that makes the owners of some insides thoughtful and serious beyond all imagination.

Probably the best story of the day was credited to John Purcell, mechanical assistant to the president of the Santa Fe. Purcell is always telling funny stories. During a particularly tempestuous voyage one of the stewards on an Atlantic liner discovered a woman passenger, very sick, bracing herself in the scuppers as best she could, and a man, suffering as badly, lying with his head in her lap. The steward looked downward in sympathy. "Madam," said he, "hadn't I better take your husband to your stateroom?"

"O," moaned the woman, "he isn't

The Bay at Avalon, Catalina Islands.

my husband, I don't know who owns him. I just want to get out and walk."

Excellent music for the round trip and while the party was on the island, was provided by the Union Pacific band. This organization, and the orchestra which played for the dance Tuesday night, made visitors and stay-at-homes realize how seldom they hear music for such large affairs played by railroad men instead of paid professionals.

W. M. Jeffers, vice president of the Union Pacific system in charge of operation, was a guest at the closing meeting Friday morning and spoke briefly. "I am impressed with two things, always, about a railroad," he said. "The first, that it is the most exacting business there is. Men in other lines of business can go back and correct mistakes or errors, but in the railroad business, particularly in the transportation departments, you men who are responsible for the movement of traffic—we can not go back and correct errors at times as we should like to do.

"Again, I am impressed with the fact that it is the one business that a man must learn from the other fellow. There is no course in universities or colleges, there are no text books from which a man can learn the railroad business. He must learn it from the other fellow."

Mr. Jeffers paid a sincere tribute to the work done by the mechanical men, "and we are more than pleased and more than happy to say to you that you have not only done what you were expected to do, but you have accomplished the almost impossible," he added.

Left to Right: W. A. Deems, Manning, Maxwell & Moore, Inc.; G. W. Rink, Asst. S. M. P., Central of New Jersey; C. M. Starke, Master Mechanic, Illinois Central; Walter C. Sanders, General Manager, Railway Division, The Timken Roller Bearing Co.

Reports were read and discussed on locomotives and car lighting, locomotive design and construction, utilization of locomotives and fuel conservation and the report of the joint committee on reclamation.

Much interest was shown in the report of E. Von Bergen, chairmen of a subcommittee from the committee on lubrication of cars and locomotives. This subcommittee had visited shops on these roads:

Union Pacific—Laramie, Cheyenne, Denver and Kansas City.
Denver & Rio Grande Western—Denver.

"Bill" Johnston, General Car Foreman, Union Pacific, and Chairman of the Entertainment Committee.

Denver & Salt Lake Railway—Denver.
Chicago, Rock Island & Pacific—Kansas City.
Missouri-Kansas-Texas — Parsons, Kan.
Grand Trunk Railway System—Battle Creek.
Illinois Central System—Memphis.
Chesapeake & Ohio—Huntington and Peru.
Delaware & Hudson Co.—Oneonta, N. Y.

The subcomittees conclusions were:

Under present day conditions with long locomotive runs, and the locomotives pooled, we believe the present practice of lubricating the locomotive with engine oil should be improved. The adoption of the methods of lubricating engine truck, driver and trailer bearings, valves and cylinders, guides, valve motion, spring rigging, and stokers, set forth above, will dispense with the use of the engineers' oil can entirely. The lubricants should be applied in the roundhouse, and when so applied it is definitely known that the locomotive can traverse a distance of as much as 1,000 miles without further attention. We believe that the conditions of today demand definite, positive and efficient locomotive lubrication, and the methods recommended in this report, will accomplish this, and thereby very substantially reduce locomotive maintenance, and in addition reduce to a minimum troubles with hot bearings.

Mr. & Mrs. R. M. Osterman of the Superheater Co. at Catalina Islands.

A hard working convention. If the days *were* a trifle warm—which was unusually unusual — at least the nights were cool, as they always are, so that the visitors slept soundly whenever they turned in, and approached their duties in the morning cheerfully, and with a clear and correct understanding of what had happened the night before, which is more than may truthfully be said of many other such meetings.

It was a fairly large convention, this one of Division V at Los Angeles, even for a city accustomed to the big ones. The registration at the finish showed these figures:

Railroad Men	512
Railroad Women	407
Railway Supply Men	299
Railway Supply Women	168
Total	1386

It seems scarcely necessary to say, but it is a part of the record: Division V will meet next year at Atlantic City in all its pomp and circumstance.

It is not work that kills men; it is worry. Work is healthy; you can hardly put more upon a man than he can bear. Worry is rust upon the blade. It is not the revolution that destroys the machinery, but the friction.—*Henry Ward Beecher.*

They Who Spend Millions—Div. VI

Nearly 1000 At San Francisco

By E. J. Whisler

DIVISION VI, which held its tenth yearly convention in San Francisco, had one day's advantage over Division V at Los Angeles by starting its session June 24 in the Palace hotel. And it was a large and imposing crowd that gathered there. The register showed this to be the situation:

Railway members.....432
Guests 258
Total, (families included).....977

More than 250 of those who attended the meeting at San Francisco began their homeward journey by traveling special to Los Angeles where they joined Division V and its guests in the trip to Catalina Islands, Thursday, June 27.

Division VI had an unusually successful meeting at San Francisco. Notwithstanding the extremely important work its members do, their meetings usually are not exciting affairs, reminding one of the accountant's conventions. But every paper presented and every word uttered meant something for railroads—these in the convention being the men who spend about two billion dollars a year for materials and supplies, the things used in manufacturing the railroads' one commodity, transportation.

Of course Mr. Aishton spoke. He had to do it. It chances to be his unpleasant duty, but he delivers his goods in a happy spirit, smiles his good-by, and scoots to some other yearly gathering, perhaps on the other side of the continent. His talk this time was, as usual, made up of good, solid facts, put forward in his own interesting way, and earnestly applauded.

Special reports for the first quarter of 1929, said Mr. Aishton in addressing the opening session, "show that while expenditures for capital purposes in that quarter were slightly below the corresponding period in 1928, the program for the remainder of the year will exceed 1928 by more than $111,000,000. This indicates that a larger capital outlay will be made for railway improvements this year than last.

"In the first three months of this year, capital expenditures amounted to $127,119,000, a reduction of $1,309,000 compared with the corresponding period in 1928. Unexpended authorizations and additional authorizations during the first quarter brought the total capital program for the year as it stood on April 1 last, to $704,960,000 in 1929, an increase of $111,203,000 over 1928. Additional authorizations between April 1 and the end of the year will augment this amount.

"Few, if any, industries contribute as much to the industrial development, prosperity, and the economic welfare of the nation as do the railroads. Not only do they provide work and the means of livelihood to nearly two million employes, but they pay out yearly nearly three billion dollars in wages which finds its way almost at once into the channels of trade and commerce. In addition, the carriers expend approximately two billion dollars a year for materials and supplies utilized in their operation and for capital improvements, thus giving indirect employment to many hundreds of thousands additional men, who manufacture and distribute products bought and used by the railroads in construction, maintenance and operation. This amount added to the three billions spent directly for wages, represents a major contribution by the railways of the United States to the economic activity of the nation.

"Through increased efficiency in operation and greater dependability of service, the railroads have not only enabled industry to realize enormous savings by reductions in inventories, but the railroads themselves have been able to reduce their own inventories to the point where on December 31 last, they were less

W. J. Farrell, Secretary Division VI; W. Davidson, Newly-Elected Chairman, and C. C. Kyle, Retiring Chairman.

than on any similar date since 1916, despite an increase during that time of more than 20 per cent in the volume of revenue freight traffic handled. On Decemeber 31 last, the amount of materials the steam railroads had in stock for current operation amounted to $474,317,000 compared with $755,563,000 on December 31, 1920, and, in 1916, it was $323,556,387."

Paul Shoup, President of the Southern Pacific Company, also addressed the convention, as did C. C. Kyle of St. Paul, purchasing agent, Northern Pacific Railway, who is also chairman of Division VI, Purchases and Stores.

Chairman Kyle, emphasized the importance of the first convention in San Francisco, and urged members making their first visit to the coast to make the most of the opportunity. He impressed upon them the increasing responsibilities of the division and the importance of the work it is doing, urging them to take something home with them which would repay their companies for the cost of their attendance.

The remainder of the opening session was devoted to the reading and discussion of technical reports. F. S. Austin, purchasing agent, Boston, Albany Railroad, read a technical paper on "Cash Discounts."

The second day, June 25, was given almost wholly to technical papers and reports. The committee on reclamation presented a valuable review of its work for the year. "The possibilities," said the report, "of effecting economy in reclamation is generally recognized by all railroads, but this committee desires to emphasize further the importance of this subject. Fundamental rules have been established, through the activities of this committee, defining reclamation procedure. After a thorough investigation, reclamation operations which have been found to be most practical and economical have been presented through committee reports in order that all railroads can proceed by their adoption.

"The importance of this subject justifies a constant and careful study of practices in effect on the individual railroad as well as the inception of new practices for the purpose of effecting further economies and savings for the carriers.

Ferry Building, San Francisco, at Night.

Reclamation of gasoline engine crank case oils is one of the most recent practices which has been placed into effect by numerous railroads. The contamination and dilution of such oils by partly burned fuel results in serious waste and expense through the scrapping of the used oil and needless wear and tear of engines. Some means permitting more frequent changing of oil without an increase in lubrication costs has long been needed. Such a process serves the ends of better lubrication and of conservation.

"Through processes now being used, reclaimed oil is available for use at a fraction of the cost of new oil. The saving thus effected makes possible not only more frequent changes of oil with resultant decrease of maintenance costs, but enables the user to purchase the highest grade of oil at a lower ultimate cost. Through the method of reclaiming crank case drainings, reclaimed oil has been used exclusively in the operation of a number of gas-electric rail cars, with apparently just as good results as with new oil."

Papers in an annual contest on control of material and supplies requirements were read by Samuel A. Hayden, chief clerk to the general storekeeper, Missouri-Kansas-Texas Lines, and A. G. Bohorfoush, chief stock clerk of the Southern Railway Company. Hayden's paper was "Improvement Is a Vital Necessity," and Bohorfoush's, "A Standard Method for Calculating Stock Turn-Over."

Wednesday, the closing day, was given over to reading of reports from committees. L. C. Thomson, manager of stores for the Canadian National Rys. read a paper on "Bin Tags." A committee reported on Subject 21 referring to purchasing, storing, and distributing equipment and supplies for dining cars, hotels and commissaries. The tablecloth-size napkins, and bedspread-like tablecloths so dexterously changed by waiters on the diners must go. At least, so said the report, in effect. It would reduce napkins to either 20 inches square or 18 inches by 22 inches, and tablecloths should not have a side drop of more than eight inches or an end drop to exceed 12 inches. This, the committee said, would mean a saving of at least 15 per cent in the linen on the dining cars.

Reduction in the number of articles of chinaware and standardization into three weights was urged. The report outlined how to select choice cuts of meats, fine, juicy melons, fruits and vegetables, to show how service can be improved.

W. Davidson, general storekeeper of the Illinois Central, was elected chairman of the division, and C. E. Walsh, purchasing agent of the Pennsylvania, was elected vice-chairman for the coming year.

At the Convention, Division VI. Left to Right: G. W. Bichlmeir, Gen. Pur. Agt., Union Pacific; C. E. Walsh, Pur. Agt., Pennsylvania; C. C. Kyle, Pur. Agt., Northern Pacific; C. B. Tobey, G. S. K., Lehigh Valley; L. C. Thomson, Mgr. Stores, Canadian National; G. E. Scott, Pur. Agt., M.-K.-T.; W. Davidson, G. S. K., Illinois Central.

In order that you may please, you ought to be forgetful of yourself.—*Ovid.*

Mr. Farrell and A. S. McKelligon, General Storekeeper, Southern Pacific.

Don't Say Railroad, Say Transportation

Speaking before a gathering of railroad executives and bankers recently at a luncheon of the Bond Club of New York, General Atterbury, president of the Pennsylvania system, declared that the word "railroad" no longer was adequate to describe the service which up to date carriers now offer to the public. The railroads are no longer railroads alone, he told his hearers, but transportation companies in the fullest sense of that term.

"My idea of a railroad," said General Atterbury, "is that it should give the people the kind of transportation they want—not what the railroads think they ought to have.

"The Pennsylvania Railroad has embarked on a comprehensive program to link up motor bus, motor truck and airplane transportation with railroad train service. This is one of the most important phases of transportation progress in this country today. With the co-ordination of railroad and motor vehicle transportation in our territory, we hope at least to minimize the wasteful and destructive competition that has grown up over a period of years. That form of competition is never in the interest of the public."

On the Cover This Month

The picture on the cover this month should have more than usual interest for railroad men being, as it is, the work of a young railroad man now employed as an electrician on the Frisco system at Fort Worth. The artist is Donald E. McKee. Mr. McKee started his working career as an engine caller for the Katy. Following this experience he served in the shop as an apprentice electrician and later as an electrician first class. Since then he has had various positions as a trainman, locomotive fireman, electrician and night enginehouse fireman. He has been in electrical business for himself in the oil fields in Texas and Oklahoma but took his present position three years ago with the Frisco. In addition to all this McKee has had marine experience gained in the latter part of the World War. He has had a varied education beginning with public school, two years of pre-engineering at the Agricultural and Mechanical College of Texas and special work at Coyne Technical School, Chicago and the Milwaukee School of Engineering.

Mr. Scott of the Katy and Mr. Davidson of the Illinois Central, at the Convention.

McKee is 33 years old. He holds the rank of 1st Lieutenant in the Quarter Masters Corps, O. R. C., United States Army, and is also a past associate member of the American Institute of Electrical Engineers. His home is at 1701 Enderly Place, Fort Worth, Texas.

What Diameter Gasoline?

By W. F. Schaphorst, M. E.

A number of years ago I attended an engineering meeting in New York City to hear the late Dr. W. F. M. Goss, at that time president of the American Society of Mechanical Engineers, deliver a lecture on locomotives and their efficiency. He made one statement that has stuck to me ever since, namely, that the fuel consumption of an efficient locomotive is so small that if it could take on its coal in the form of a solid bar of coal as it went along, the bar would be no larger in diameter than an ordinary lead pencil. I thought that was a very good way of putting it.

Similarly, applying Dr. Goss's interesting method to automobiles, I get the following results for the various miles per gallon of gasoline.

Miles per gallon.	Diam. of constant stream of gasoline.
10	0.0215 in.
15	0.0176 in.
20	0.0152 in.
25	0.0136 in.
30	0.0124 in.

Please note that some of these diameters are not much larger than certain black hairs which run from 1/450 to 1/140 of an inch in diameter. All of which, to me, is marvelous performance. Visualize, if you can, that thin hair of gasoline as you drive along in your car, and the energy it gives up and you will have a higher regard for the accomplishments of automobile manufacturers. The table is based on 231 cu. in. of gasoline per gallon.

Nothing Personal

Man (rushing excitedly to police station): "I've just killed the purchasing agent."

Police Sergeant: "You've come to the wrong place. See the sheriff's office about the bounty."

J. E. Mahaney, Superintendent of Stores, Chesapeake & Ohio.

At Last

A Railroad to Hudson Bay

The Pioneer Track-Layer At Work on the Hudson Bay Railroad. A Freezing Job Where Men Knew Real Hardships.

A Far North Dream Is Realized

By James W. Booth

For many years, up where the northern lights are seen, men have talked of a railroad to the sea. Wheat growers, farmers of all kinds, prospectors, business men, tourists—all have dreamed of a line over the Height of Land, across the Great Barrens and on to Fort Churchill on Hudson Bay through the most desolate stretches of the northern continent.

And to the dreamer who mused on such an undertaking the old-timers pointed out the obvious difficulties of the project: the problem of laying steel tracks over the oozing muskeg swamps, the obstacles confronted in the task of bringing in supplies; the weather, terrifically cold at one season and at another intolerably hot. And all this labor for what? asked the wiseacres. Well, replied the engineers who thought the job not impossible, to shorten the distance for freight and passenger between Manitoba and England, some 600 miles.

Now this has been accomplished. Engineering has triumphed as it usually does; it has fought through to a finish, carrying the Hudson Bay Railway from The Pas, formerly its northern terminus, 512 miles to Fort Churchill, crossing the watershed of four great rivers, the Nelson, Owl, Limestone and Wier, dropping from the 1,190-foot elevation of The Pas to ten feet above sea level at Churchill, linking the prairies of Manitoba with Liverpool by a northern route, and opening the country alike to mining interests and the tourist trade.

It was, indeed, as the pessimistic ones had predicted, the most daring railroad job America has known, involving, as it did, the discarding of all the modern equipment usually associated with railroad building, steam shovels, graders, tractors and horses, and necessitating a return to more elemental devices, wheelbarrows, picks and shovels; the muskeg swamps would bear nothing heavier.

Muskeg is reindeer moss and decayed vegetation, and these swamps are pitted with treacherous places. For instance, the perpetual frost-line in some spots is only six inches from the surface while a few feet away the gathering of water might draw the frost to a depth of six feet or more during the summer months when the temperature not infrequently rises to 90 degrees and mosquitoes and flies assail the workers. Still, in other places the frost drops to a depth of 20 feet, and the land is oozy and incapable of holding any great weight.

An idea, found practical in wartime France, was found practical here, too. Duck boards, otherwise wooden sidewalks, were used. In the winter of 1927-28 there were built 21,000 of these, a sidewalk about 29 miles long. These duck boards were freighted out on sleds ahead of the line of steel and distributed in caches every ten miles.

But the infinite labor has compensations as infinite. From Saskatoon, in the center of the Alberta and Saskatchewan prairies, to Liverpool by way of Hudson Bay, is only 3,791 miles, whereas it is 5,213 miles by way of the Great Lakes and the St. Lawrence, the present rail-and-water route. That is a difference of 1,422 miles. But that is not all: from Fort Churchill, the terminus of the new line, to Liverpool is almost exactly the same distance as from Montreal, where the wheat now goes on ocean freights to England, so the two sea hauls are virtually the same.

But from Saskatoon to Fort Churchill is only 845 miles, while from Saskatoon to Port Arthur, at the head of Lake Superior, is 1,142 miles. Wheat loaded on cars in the prairie provinces can be delivered direct to the elevators on Hudson Bay without rehandling, and with a shorter rail journey than that to the head of the Great Lakes. Wheat shipped via Port Arthur must be reloaded into lake grain carriers, sent down to the Welland Canal, reloaded into canal barges, sent on to Montreal, transferred to the elevators, and from these to deep-sea ships.

At Fort Churchill grain elevators will be built for the year-round han-

Fort Churchill, on the New Hudson Bay Railroad. This Is Where the Northwest Mounted Always Take Their Man After They Get Him.

dling of grain. Moreover, it is declared, the new route will give European commerce and immigration entrance into the center of Canada by an economical water route, and will also supply Great Britain with a route to the Orient well removed from foreign boundaries.

Canadians were thinking of this more than 50 years ago, thinking how to utilize that northern water route that had proved so alluring to Hendrik Hudson and other early explorers. Work started actually in 1906 and 1907 when the first stretch from Hudson Bay Junction, in northeastern Saskatchewan, was built in to The Pas, on the banks of the Saskatchewan River. The contracts were let in 1911 for the road to the bay, then designed to go to Port Nelson, at the mouth of the Nelson River; and 330 miles were actually built to the Kettle Rapids on the Nelson. The World War and business depression halted the work and the steel rails, rusting quickly, began sinking into the dreary muskeg swamps. By 1926, though Canada was again ready to move forward with the line, opinion against Port Nelson as a terminus had grown. Frederick Palmer, English engineer, made a survey, and advised Fort Churchill, a hundred miles farther north. The development on the Port Nelson project, costing $6,000,000, was abandoned.

Winter months were used for bringing in supplies on sleds, drawn either by horses or tractors; and at points separated by ten miles construction caches were placed in log and canvas camps. Each cache, to supply workers for five miles in either direction, contained 60 tons of supplies, 40 tons being food, and 20 tons wheelbarrows, picks, shovels, tents, bedding, clothes and other articles. Before the spring thawing the workmen themselves, mostly Finns, Swedes, Belgians and Russians, every man an individual contractor, working under subcontract from the construction company, were brought in. Sometimes eight or ten of them would band together, buy a tent and food supplies in common, and take a contract for a mile of grading.

They knew little leisure, these hardy fellows. They worked sometimes from 16 to 18, and in exceptional cases, 20 hours a day, for in that northland the summer sun sets around 11 o'clock and is up again at 1:30 a.m. These workers averaged $5 to $6 a day above their expenses over a period of eight or nine months. And this was money saved, for there was neither liquor nor women, sightseers nor idle visitors. The Royal Canadian Mounted Police had established a liquor dead-line at the edge of The Pas, and saw to it that the law was obeyed. In a land where every pound of food is freighted at immense cost camp-followers are not wanted.

North of The Pas, where the last of the government liquor stores is situated, the province is unsurveyed crown land, not yet opened to homesteaders, and the red-coated mounties rule with an iron hand. The ministry of railroads itself controls three miles either side of the Hudson Bay line, and not even a trader can build a store along the right of way without a permit from the engineers, who fix the site and control the operations of the storekeepers.

So that although the tourist trade is an important factor in the future of the line the country probably will not be ready to welcome visitors until next year. Then the vacationist will be enabled to spend his two weeks or more in the Land of the Midnight Sun without having to cross to Norway or Sweden, and he will see in this land of the Crees natural beauties certainly as good as those abroad.

In the work of construction a vast quantity of material gathered at Port Nelson nearly 15 years ago was moved 150 miles up the bay; dredges and tugs brought around from the St. Lawrence, temporary docks built, and, this summer work will be started on the grain elevators.

This brings up the question of the duration of operation of the new port. Churchill is a natural harbor with a narrow entrance between rocky headlands, one of which is crowned by the eight-foot thick stone walls of ruined Fort Prince of Wales, and the other by the ruins of Merrey Battery, noted defenses in the early days of the Hudson Bay Company when the famous company sent its supplies west and south through the northern rivers to its various posts. One of the contentions against building the new road was the fact that there is open water in the northern seas for only four months of the year. This, it was argued, would preclude profitable operation of the line.

Proponents of the road, however,

(Continued on Page 34)

Harvey Service in Cleveland Station

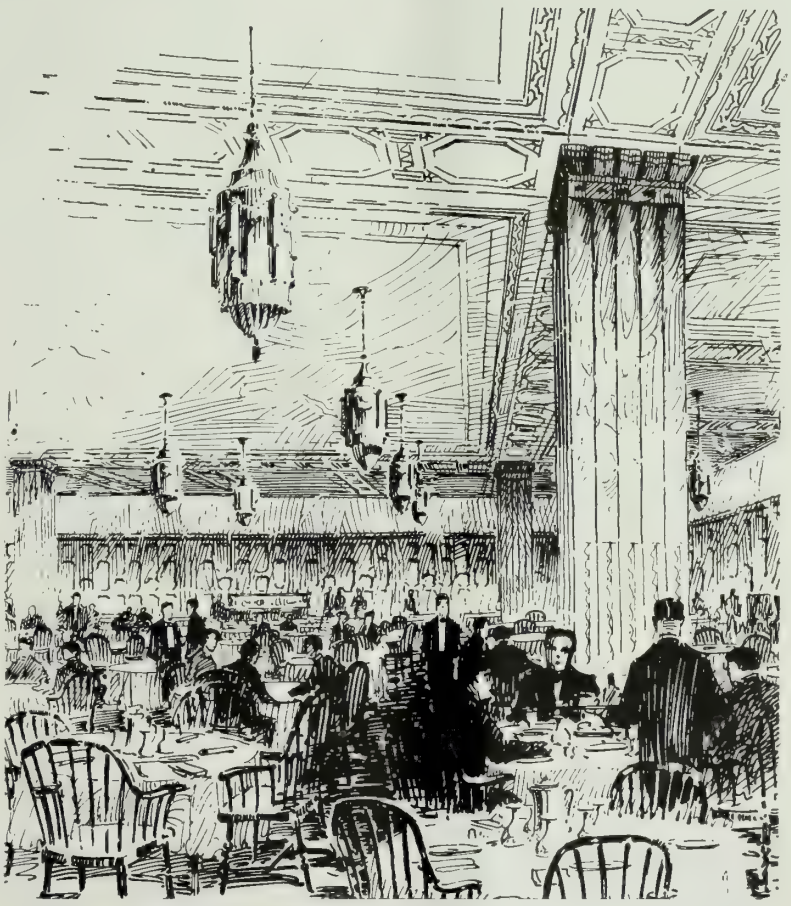
An Old Time Standard

By Joseph F. Doherty

SHOPS AND restaurants in Cleveland's new union station are to be operated by the Harvey organization, famed for its chain of hotels and dining stations along the Santa Fe Railway and for food and merchandising services in railway terminals at Chicago, St. Louis and Kansas City.

Approximately 175,000 square feet of space in the new station has been leased preparatory to this expansion of Harvey service to Cleveland, incidentally, the first development of the Harvey organization east of Chicago. Because of the importance attached to the Cleveland operations, a new company, Harvey, Inc., has been formed, having the same owners and executives as Fred Harvey, Inc. Harvey, Inc. will operate the restaurant and merchandising services in the Cleveland terminal as well as in the terminals at Chicago, Kansas City and St. Louis.

Byron S. Harvey and his partners, Frederick H. Harvey and John F. Huckel of Chicago and Kansas City said that present plans call for 40 or more shops and restaurants located along concourses, adjoining the passenger waiting rooms, and at other convenient places in the station. The station, ranking with the largest in the world, will be in operation early in 1930.



The Main Restaurant, Along the Train Concourse, Will Have the Finest of Appointments.

Facilities to accommodate between 9,000 and 10,000 persons during the lunch period are an indication of the scope of the contemplated restaurant development. This will include a spacious restaurant, distinctively designed and appointed, and with typical Harvey standards of quality and service; a large lunch room, a coffee shop, cafeteria, sandwich shop, and luncheonette service. These will be graduated as to prices and varied as to menu, meeting every requirement of purse and palate.

The merchandising program will include a drug store, one of the largest in the world; a men's furnishings shop, women's shop, gift shop, book shop, toy shop, flower shop, fruit shop, food shop, pastry shop; numerous news stands, cigar shops and candy shops as well as barber and beauty shops. In fact, so great is the range of shops as to provide every article as well as every kind of service the public is likely to need.

The majority of the restaurants and shops will be on the concourse level, the floor immediately above the train and rapid transit platforms. Here, they will be convenient to passengers going to or from the trains, as well as to persons passing through the station, bound for one or other of the inter-connected terminal buildings. The drug store will be beside the ticket lobby. Along the east side of the steam concourse, convenient to stairways leading to train platforms, will be the large lunch room, and, adjoining that on the east, the main restaurant.

Details of shop locations and designs are now being determined by the Harvey executives and terminal representatives. Plans are being prepared by Graham, Anderson, Probst & White, architects for the terminal and terminal buildings. Architectural treatment and construction will be in harmony with the station generally and will include the best of material and workmanship. Construction will start in a few months and restaurants and shops will be ready and in operation when the station is put into service.

In announcing this first expansion east of Chicago, Byron S. Harvey stated that the Cleveland layout will be the largest of the terminal enterprises of the Harvey organization,

Byron S. Harvey

and, for that matter, the world's largest unified merchandising service operated in conjunction with a union passenger station.

In addition to its restaurants and shops at the Chicago Union Station and at the union stations in St. Louis and Kansas City, the Harvey organization under the name Fred Harvey, operates its famous string of hotels and dining stations along the Santa Fe, as well as the dining car service on that road and on the St. Louis-San Francisco Railway. Fred Harvey also operates extensive motor cruises in the Southwest and the hotels and transportation facilities at Grand Canyon National Park.

It was the continuity and completeness of the Harvey service with the character of that service, that appealed to the Cleveland terminal interests, according to Ralph H. Sharpe, one of terminal officers.

"The terminal interests," he stated, "wanted the shop and restaurant space in the Union Station developed with uniformity, or better still, a continuity of service that would run the gamut of the food and merchandise needs of the public. It was felt this best could be achieved with unified management, especially the type of management for which Harvey is famous.

"Clevelanders familiar with the Chicago Union Station," he continued, "have noted that each of the Harvey units is a related and connected part of the entire Harvey enterprise there. This is because each shop serves a specific purpose and need, with duplications of services avoided. Another consideration, perhaps the most important one, with the terminal interests, was that of quality and service. Harvey service is immaculate throughout and it is always courteous service. The idea of the customer as 'always right', permeates the entire organization. Down through the years, the service has had a fine reputation. Throughout the West and Southwest, the Fred Harvey hotels and restaurants need no introduction to travelers; they are institutions in the localities they serve. And just as much may be said for organization on the score of its more recent development in the field of merchandising. The management is determined that the service in this connection shall conform with the standards established in the restaurant operations. The expansion of the Harvey organization into Cleveland will be a fine thing for the station and the city as well."

It was a visit Byron S. Harvey and his associates paid to Cleveland, some months ago, that led to their becoming interested in the restaurant and merchandising facilities in the union station. "We saw at first hand the magnitude of the undertaking and we were amazed," said Mr. Harvey. "Then again, the city seemed to be on the threshold of its biggest development."

The present Harvey service is a development of more than a half-century, beginning in 1876 when Fred Harvey, then a traveling commercial agent for the Burlington, opened a lunch room on the second floor of a little wooden depot at Topeka, Kans., on the Santa Fe. In 1928 more than 15 million meals were served by the Harvey plant.

The organization has been a family institution since the beginning of Fred Harvey's activities. Fred Harvey, the founder, died in 1901. He was succeeded by his son Ford Harvey and, following the latter's death, Byron S. Harvey, another son of the founder, took over the direction of the organization. One of his partners, Frederick H. Harvey, is the grandson of the late Fred Harvey, and still another partner, John F. Huckel, is the son-in-law of the founder.

The Drug Store Will Be One of the Largest in the World. Conveniently Situated, Too, Beside the Ticket Lobby.

Air-Rail Coast to Coast Service

New York to Los Angeles 48 Hours

Herbert Photos.

By James H. Lee

WHY ANYONE should be in a hurry to go to Chicago or New York in such weather as this is several jumps beyond the understanding of this writer. Still, if you must do it, you can now make the journey any day part plane, part train, in 48 hours. That's the westbound time. It doesn't take quite so long going east, about 46 hours, but it takes just as much money.

If you are in New York and quite suddenly decide to get to Los Angeles just as quickly as the law will permit—a perfectly wise decision, we believe—you can make the trip, train and plane, for $351.94. For this amount, one passenger gets his rail ticket and one lower berth on the Pennsylvania from New York to Columbus, Ohio; all day—that is 10 hours—in an airplane from that point to Waynoka, Okla.,—this is the name of a town—with free luncheon in the air; all night in a Pullman sleeper on a Santa Fe train to Clovis, N. M., and plane to Los Angeles.

Big things happened in June in aviation circles. Those who have kept trace of such elevating things know, of course, that June 1, the Western Air Express established an air passenger line between Los Angeles and Kansas City, making connections at Kansas City with various railroad systems. This route affords transcontinental service by grace of traffic agreements with the New York Central, Santa Fe, Chicago & Alton, the Pennsylvania and several other roads.

Then in the middle of June Universal Air Lines started transcontinental service under agreements with the New York Central and the Santa Fe. Under the Universal schedule passengers are carried by airplane from Cleveland, Ohio, to Garden City, Kans., a daylight trip, the journey between New York City and Cleveland and between Garden City and Los Angeles being made by train.

Now comes Transcontinental Air Transport, commonly known as "T.A.T.", to join the ranks of transport concerns speeding passengers across the continent. For more than a year T.A.T. had been preparing to establish the service so that it began operations with a reputation that was more than nationwide.

The company is aligned with what is known in financial circles as the Curtiss - Keys - Bancamerica - Blair group, a combination rated in excess of $225,000,000, and probably the biggest aviation combine in the world. The combination includes the following:

Aviation Corpn. of California.
Aviation Credit Corpn.
Aviation Exploration, Inc.
Aviation Securities Co.
Cessna Aircraft Co.
Curtiss Aeroplane & Motor Co.
Curtiss Aeroplane Export Co.
Curtiss Airports Corpn.
Curtiss Assets Corpn.
Curtiss-Caproni Corpn.
Curtiss Flying Service, Inc.
Curtiss-Reid Aircraft Co., Ltd.
Curtiss-Robertson Mfg. Co.
National Air Transport, Inc.
National Aviation Corpn.
North American Aviation, Inc.
Pitcairn Aviation, Inc.
Sikorsky Aviation Corpn.
Sperry Gyroscope Co., Inc.
Transcontinental Air Transport.

This affiliation gave T.A.T. the support of men widely known in the financial and aviation world. It was backed by some of the greatest bankers in the United States, and by men who had gained international reputations as airplane operators. Colonel Charles A. Lindbergh, technical adviser for T.A.T., laid out the needed airports, designated the equipment to be used, and selected the pilots to operate the planes. The result was that before the service had even been started, the name of T.A.T., so far as the general public was concerned, had become secondary; to the man in the street this new transcontinen-

tal route was known as the Lindbergh line, and as such it probably always will be known.

Colonel Lindbergh took the first eastbound airplane out of Los Angeles when the transcontinental service was established Monday, July 8. To lend a bit of romance to the occasion, he was accompanied by his bride, the former Anne Morrow; and there was a full list of passengers. He remained over night at Clovis, N. M., and then guided the first westbound airplane into Los Angeles, arriving Tuesday, July 9.

There were 15,000 persons at Grand Central Airport, in Glendale, to see Lindbergh start the inaugural trip. Some of the crowd had arrived at 5 a.m. so as to be sure to be "at the front" when the airplane left at 8:30. Mary Pickford was present to christen the ship, a pleasurable duty that was performed in the East by Amelia Earhart, of aviation fame. Then, when Colonel Lindbergh returned the following day with the first westbound plane there was even a greater crowd to meet him, and as an added courtesy there was assembled on the field airplanes representing practically every air transport company in Southern California, army and navy planes, and many pilots who had flown with Lindbergh in the days gone by.

The schedule provided by the Transcontinental Air Transport provides that passengers shall leave New York City at 6:05 p.m. on the Pennsylvania train, Airways Limited, arriving at 7:55 the next morning at Columbus, Ohio. There they board the airplane for the flight to Waynoka, Okla., the trip being made by way of Indianapolis, St. Louis and Wichita. At Waynoka the passengers are transferred to the Santa Fe for an overnight trip to Clovis, N. M., and at 8:10 a.m. board the airplane for the flight to Los Angeles, arriving at 5:52 p.m.

This schedule calls for a 630-mile trip at night from New York City to Columbus. The airplane trip, 912 miles, all in daylight, from Columbus to Waynoka, is scheduled to be made in ten hours. Then follows a short trip on the Santa Fe of 288 miles to Clovis, and the next morning a flight of 897 miles to Los Angeles, the airplane journey being made by way of Albuquerque, Winslow and Kingman. Throughout all the journey the passenger travels by night on the train with Pullman accommodations, and during the daytime he travels by airplane. There are two nights on the train and two days in the airplane, a total of 48 hours, a trip that by all rail travel takes 78 hours.

The airplanes used are tri-motored Fords, each carrying 12 passengers. The pilots are thoroughly experienced, and the accommodations over the entire route have been declared excellent.

To the average traveler it will be most interesting to note that within the past few weeks practically every large railroad system in the United States has entered into traffic agreements with one or more air passenger transport companies, combinations effected to give the best possible service to the traveler. There is practically no part of the United States today to which the air-rail combinations do not give service, providing the journey is to cover a considerable distance.

The day really has arrived when every railroad passenger agent is being trained to be an air transport booster; and every airplane transport passenger agent has become a railroad ticket salesman. The intention is to give the traveler the best that transport mediums can provide.

One of the wonders of the new transportation was that on the second day, when he returned to Los Angeles, Colonel Lindbergh had something to say. Up to a certain hour he had studiously avoided all conversation. Not only did he maintain profound silence, as usual, but he declared that Mrs. Lindbergh, also, had nothing to say, which struck some old married men as going it a bit strong—telling the writing chaps that your wife has nothing to say, without even taking a family vote.

"That youngster has a lot to learn," said a white haired gentleman, "and it won't have a thing to do with airships."

Colonel Lindbergh's recovery from the silence in which he has been buried miles deep for a long, long

—International Newsreel.

The Columbus, One of the Planes Used in the Transcontinental Air Transport Line.

time, came when he and his taciturn Missus settled down temporarily at the Ambassador hotel after the colonel's arrival July 9 from Winslow, where he had boarded the first westbound plane. What did he believe the future might hold for aerial travel?

"I believe," said the colonel. Two reporters fell over backward, but soon recovered. "I believe that an increase in air travel will increase proportionately the volume of business done by the railroads. There never will be any competition between the two methods of transportation. Where now only one plane leaves its terminal the business will increase to such an extent that whole fleets will leave on the schedules.

"In the near future we shall eliminate the train travel between Clovis, N. M., and Waynoka, Okla., and fly direct to Columbus, O., from Los Angeles. This will reduce the air-rail time between Los Angeles and New York to 36 hours. The cost of air travel will be reduced proportionately as the volume of business grows.

"The elimination of the 900 miles of train travel will necessitate night flying. We now are experimenting with night planes that will be fitted up like Pullmans. Just when that service is to be inaugurated I cannot say, because I do not like to make guesses."

Of course it is uncanny to suppose that Lindbergh originated the idea of saying nothing until his company was actually ready for business, but some wise gentleman thought it up. Now that service had actually begun Lindbergh seemed suddenly as eager as all the rest of the world for free advertising. He talked in Los Angeles and he talked somewhere along the coast. A long and interesting tale came out of Hillsborough, Cal., near San Francisco. In this interview the Silent One said plans are under way by his company whereby San Francisco will have thirty-six-hour service with New York. The new route just opened gives Los Angeles forty-eight-hour service to the eastern metropolis.

San Francisco will, he said, under the future plans of the company, be made the western terminal for the route, although the planes still will follow the southern route. The connecting point will be Barstow, with passengers for Los Angeles being transferred there. Atmospheric conditions and present equipment necessitate continuance of the southern route, he pointed out.

Within a year or six months, Lindberg said, his company will put "Pullman airplanes" into service. Tests are being made of this type ship, equipped with both two and four motors. Lindbergh declared three-motored planes are fast growing obsolete, declaring no company should operate a plane which will not run with one motor cut out.

Use of Pullman sleepers, he said, would result in an all-air service between San Francisco and Columbus, O., consisting of two nights and one business day expended in travel, and permitting the passenger to sleep on trains while traveling over the eastern mountains, where atmospheric conditions make flying hazardous. At present, he said, there is no reason for cutting off another 12 hours, because the time necessarily would be at night, the cost would be too great and the convenience too little with present equipment. Later, however, he said, cutting off another 12 hours might be accomplished.

The coast cities of Oregon and Washington are entitled to transcontinental service, in Lindbergh's opinion, and probably will have one by way of a northern route. He did not indicate his company will be connected with this suggested service.

The first of the air-rail passengers who left Los Angeles Monday morning, July 8, arrived in New York early Wednesday morning, July 10, to be greeted at the Pennsylvania terminal by officials of the Pennsylvania Railroad and Transcontinental Air Transport, Inc.

The holder of ticket No. 1 was Albert S. Hichen, Los Angeles insurance broker, who is taking his first vacation since he came here twenty-four years ago from England, and who, if all goes well, will be in England in eight days from the time he left Los Angeles.

The maximum speed of the planes used in the new service is 135 miles an hour. They have a cruising speed of 115 miles an hour, but in service they will be operated at 100 miles an hour, so as always to have a reserve speed in case of unexpected delay. They are equipped with three Pratt-Whitney Wasp motors, each of 400 horsepower. Any one of the three motors is capable of keeping the plane in the air, giving it a very wide gliding range in which to make a safe choice of a landing place. The motors are air-cooled, having nine cylinders, with radial arrangement, like the spokes of a wheel.

Patrician Is Placed in Regular Service

The Patrician, 20-passenger monoplane transport, built by the Keystone Aircraft Corpn., has been placed in passenger service by the Colonial Air Transport on its New York-Boston run. This service, which began the last of June, is said to be the first in which a plane of such large capacity is in regular use. The plane, before being placed in service, was reconditioned, and had new engines installed. It makes the round trip between Boston and New York daily, covering the 202 miles in one hour and 35 minutes to one hour and 50 minutes.

You cannot run away from a weakness; you must fight it out of you or perish; why not fight it out of you now, right where you stand.—*Stevenson.*

Another Big Engine

In the illustration hereabouts or somewhere close, is another fine member of the Iron Horse family presented for public admiration by the Great Northern Railway. Word just received from headquarters at St. Paul conveys the interesting information that this locomotive is one of several to be assigned to the Great Northern's new fast train, the Empire Builder, which was officially started in service June 10. Nearly seven hours was dropped out of the running time between Seattle, Portland and Chicago by this train.

The tremendous reserve power of these locomotives, says the official communique, enables them to maintain a fast and uniform speed, upgrade and down. With a tender holding 15,000 gallons of water and 5,000 gallons of oil, the locomotive can be run for hours without stopping for water or fuel. It measures 105 feet from tip of pilot to end of tender and weighs 370 tons.

One Year's Air Record

Reporting on the first year of its operations of de luxe air passenger service between Los Angeles, Oakland and San Francisco, established May 23, 1928, Western Air Express has issued a statement showing that during the twelve months its planes operating over this route—

Have flown 304,662 miles.

Carried 3038 paid passengers.

Held to an average cruising speed of 123 miles per hour.

Maintained an on-time schedule of better than 99 per cent.

No passenger or pilot has been injured.

No plane has been damaged.

Fastest trip, 1 hour and 59 minutes, at an average speed of 183 miles an hour, the plane being favored by a heavy tail wind.

Trading Cars for Planes?

The purchase recently by the Fox Movietone Corpn. of a six-passenger Fokker airplane to be used in filming news events with sound brings to light the fact that 22 industries of varied types are now using planes in the conduct of daily business affairs.

Manufacturers throughout the country now consider aircraft an integral and important adjunct to their day-by-day operations.

The Fox Corpn. is the largest type of business and industrial concern to realize the manifold advantages accruing from the use of airplanes. The Fox Fokker, equipped with a sound registering machine weighing 400 pounds, may be flown on short notice, enabling cameramen to reach scenes of important happenings far ahead of those using other means of transportation.

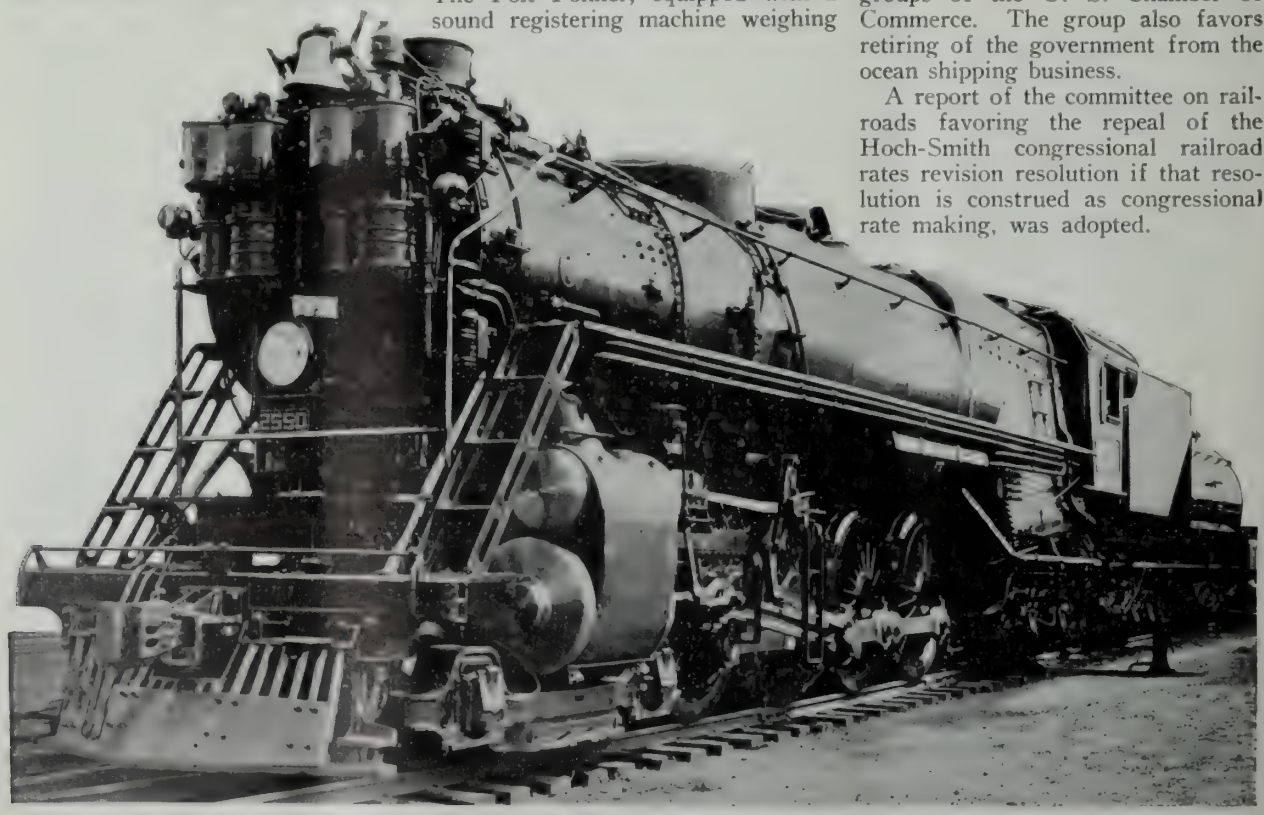
T & P to Spend Millions

The Texas & Pacific Railway proposes to make capital expenditures during 1929 for additions and betterments totaling $16,653,714. The proposed outlay, recapitulated as roadway projects, includes laying of heavier rails, ballasting track, strengthening bridges, trestles and culverts, additional yard tracks, sidings and industry tracks, improvement of terminals, changes of grade or alignment, signals and interlocking plants, construction of second main line tracks, freight and passenger stations, office buildings and other station facilities, fuel and water stations and appurtenances, shop buildings, engine houses and appurtenances, shop machinery and tools and other improvements.

Congressional Rate Making

Resolutions opposing fixing of railroad rates directly by congress have been adopted by transportation groups of the U. S. Chamber of Commerce. The group also favors retiring of the government from the ocean shipping business.

A report of the committee on railroads favoring the repeal of the Hoch-Smith congressional railroad rates revision resolution if that resolution is construed as congressional rate making, was adopted.



One of the Big Locomotives Used in Hauling the Great Northern Railway's New Fast Train, "The Empire Builder." Chicago to Seattle.

Editorial Comment

THIS MONTH in the AIR and along the RAIL

By Harold A. Smith

A. R. A. Conventions

Draft Gears

Hand to Mouth Buying

Aviation Developments

Air-Rail Travel

Obsolescence of Locomotives and Cars

Three important conventions were held at distant points during June. The Purchases and Stores officials met at San Francisco. The Mechanical officials at Los Angeles, and the Railroad Superintendents at Mexico City. President T. B. Wilson of the superintendents, in his opening address said, "Not only are we promoting a greater appreciation and understanding of our chosen vocation, but we are developing, perhaps unconsciously, a finer appreciation of characteristics and temperaments; in short, establishing a bond of international goodwill".

This trend in recent years toward holding various national conventions in different parts of the country seems to be an excellent one. The thought in the past has been that conventions should be held in central points under the theory that it would increase the attendance, lessen the time taken in going and coming and place the conventions on more of a business basis than social one. The attendance at the meetings held in June surely disproves the first theory, over 600 having journeyed to Mexico City, while the registration at San Francisco and Los Angeles totaled close to 2300. No one who attended these meetings will question the seriousness of the delegates. All of the sessions were well attended, conscientiously conducted, and proceedngs and addresses seriously received. The order of the day always was business first.

Travel is always educational and this also applies to railroad men. These long trips give the men opportunity to see new parts of the country, to meet their brother railroad men on their own stamping ground. They see at first hand the shops, the stores departments and the operating problems of other roads. Surely such trips can not fail to send the men back to their jobs with new ideas, broader viewpoint and greater enthusiasm, particularly when they realize how important to the nation's welfare the railroads are, and that each man is an important cog in their success.

To the casual observer who has attended the meetings of Division V for many years there were several things worth noting. The age of men at these meetings is important. A new regime is coming forward, men in their thirties and forties. Maybe they are more impetuous than some of the older heads who have carried forward the work in the past, but they are men craving action and actuated only by results. Younger men not afraid to get on the floor and say what they think. Action is the thing today, and this meeting at least cleared up some of the dead wood and opened up the way for more constructive work for this division to accomplish.

The Draft Gear report, which included the report of the Purdue tests, probably was the most exhaustive one ever presented at a mechanical meeting—more than 300 pages. In the discussion it was stated that, "Too little space and too little travel is being allowed for the work the gear has to do." With the increased size of cars and load the space allowed for draft gears will ultimately have to be increased. It should not be forgotten that the original function of the draft gear was protection, to so cushion the shock that the lading and car structure are protected from damage. If the gear is made too strong or too rigid the damage to the lading and car will be more expensive than gear part replacements.

The keynote of the Purchases and Stores convention seemed to be the large reductions which have been accomplished in stocks of materials carried by the roads, the total having been reduced nearly one-half since the war with a resultant saving in interest alone of about $14,000,000. This is fine, but watch the hand to mouth buying. Ordering in too small quantities of articles in constant demand may increase the costs unconsciously. Freight, telegrams, rush orders, extra invoices, being short of material when needed, all add to your costs. Then don't forget the manufacturers' problems, five or six orders a week for one article each when you should carry a supply on hand adds materially to his cost of doing business, and the burden must be passed on to you again in higher prices. Watch carefully not to "save at the spigot and leak at the bung."

Advancement in aviation seems to move rapidly on, with only "The sky as the limit." A couple of boys over in Cleveland broke the record for endurance refueling flights and the populace went haywire. A few days later Mendell and Reinhart, in Los Angeles, who call themselves a couple of "hard-boiled hombres," knocked this record into a cocked hat by staying up for 246 hours and 42 minutes. Fame in the aviation world is short-lived these days. They don't give you time enough to meet all the mayor's committees and attend the banquets before the glory is snatched away from you.

We don't need to tell you that June and July marked the opening of the first air-rail transcontinental service. The papers have been full of it. But the fact that's interesting is the public's ready acceptance of this new form of transportation in spite of the fact that the rates are anywhere from one hundred to three hundred per cent higher than first class railroad accommodations. The Western Air Express during the first month of operation on its Los Angeles-Kansas City line, which makes rail connections to all parts of the country, operated at 50 per cent of capacity, carrying 371 pay passengers. Eastbound travel, however, was about 50 per cent greater than that originating out of Kansas City. It is also in-

teresting to note that this company carried 7,880 passengers during the first six months of this year, compared with 6,794 for the entire year in 1928.

Lindbergh after completing the first air-rail trip said that within six months to a year his company will put "Pullman Airplanes" into service, which will make it possible to cut the air-rail running time from coast to coast to 36 hours. Fly direct to Columbus, then a night trip by rail to New York.

The average rate for passenger air transportation is now between ten and eleven cents a mile. When planes with a carrying capacity of 30 or more are developed this rate will be materially reduced as operating costs per passenger unit go down. As soon as larger capacity planes come into commercial use flying rates will be on a competitive basis with railroad rates and not until then. Germany has built a plane (not a dirigible) to carry 100 persons.

In June 593,254 pounds of mail were carried by plane. This is an increase of 5,783 pounds over May, and was accomplished in spite of the fact that June had one day less than May and five Sundays.

Last month in this column we referred to the word, "obsolescence-minded." Evidently we did not make ourselves clear as we have received several letters from readers asking for a better explanation.

Passenger airplanes built a little over a year ago and costing over $75,000 were hailed as the last word in flying. Today, new planes are being delivered which, to the casual laymen, may look the same, but in some of these there have been as high as 262 changes. Planes over a year old can be almost classified as obsolete. Air officials must be obsolescence-minded; the industry moves so fast and the competition is so keen that nothing but the latest can economically survive.

Over 40 per cent of the locomotives owned by Class I roads are over 20 years old; over 19 per cent are over 15 years old. Still locomotive design in the past few years from the standpoint of fuel economy, ability to deliver more drawbar horsepower, haul heavier loads at higher speeds, and at a lower maintenance cost has advanced almost as rapidly as aviation design.

Let's look at this situation as the aviation interests do. Won't writing off the old engines faster and replacing them with modern super-power pay more dividends? Why let the aviation men copyright that word "obsolescence-minded"? Let's repeat, "One who is broadminded enough to limit the life of equipment to its productive capacity based on advancement in the industry and its ability to earn a maximum return in the service in which it is employed", and that goes for many other things besides locomotives—cars, machine tools, antiquated shops and terminals. Mr. Gormley in addressing Division V said, "There is not a railroad in the United States today, bar none, that is not now operating some type of freight car equipment that ought to be in the scrap pile."

Now, speaking again about the mechanical division's meeting in Los Angeles. We talked about the trip and some of the things that were done. How about the things that were omitted? Why not a report on automatic connectors? This surely is a mechanical subject, not purely a political one. The question is before the Interstate Commerce Commission now on a petition from the brotherhoods. We know that the A. R. A. is going to conduct tests. But when? There is sufficient data available now to make an interesting report. Why not show your employes you have some interest in their safety without its being forced? Leading advanced thought never hurt any man or group of men.

The Efficient Mr. Bernet

One of the elements that make life worth living is the unexpected happening. There are times when it looks as if everything is about to slip the wrong way. Editorially speaking, it seemed exactly that way through most of June. True, there had been a few earthquakes here and there, but none in our back yard, thank goodness. Everything was pretty dull until along toward the end of the month when a telegram came from New York telling us the Erie was about to resume paying dividends.

Of course, dividend paying by the Erie can not begin immediately. The office machinery needed for such work, the kind used when this road paid what everyone supposed was its last dividend, back somewhere in our grandfather's youth, had been stored in the attic, far back in the Nineteenth Century, and there it had slept the years away in beds of rust. This was a long time ago, children. Lydia E. Pinkham was a girl in those days, and the Smith Brothers had just started their famous whiskers. It may take some time, therefore, for the Erie Company of this generation to procure new facilities for dividend paying. While this is being done the proper officers, aided by competent detective forces, will be delving into ancient archives in a search for the names of early day settlers in New York, Brooklyn and Jersey City who, strange as it now seems perhaps, bought Erie stock under the peculiar impression that it was worth money. Little did these gentle and confiding souls imagine how much water would go under the wheel before the bread they had cast there would start toward home again. No kindly providence warned them that they were making a permanent investment. Railroad finance was still too young for these poor saps to know that when they heard the names of Drew and Fisk and Gould it was their cue to jump backward and fade into the distance as quickly as possible.

Space is lacking here to picture in words the tragic tale of thievery, of broken fortunes, ruined estates, penniless widows and orphans thrown upon charity as a result of the crooked operations of these bandits. The story is told rather roughly but with what is declared to be entire accuracy in Commodore Vanderbilt, An Epic of American Achievement, the book issued last fall describing the early history of Commodore Vanderbilt and his times.

The commodore was a hard boiled product of a crooked age in railroad finance, but it was, after all, his strength of character that saved the Erie and some other properties from the vicious marauders of those reckless days. Gould left a great fortune to be dissipated, with much scandal, after he had gone to the shops for the last time. Fisk was murdered, and many persons regretted that it had not occurred long years before, and some that it might not happen several times. Drew, the sanctimonious old hypocrite of finance, was well cleaned up by Commodore Vanderbilt, and left little more than

an odious memory. He was by far the worst of the group, this man Drew, for throughout all his crookedness he maintained a pretense of piety that nearly drove the old commodore wild in the closing days of his life.

In some way, perhaps because it was a much needed freight line, the Erie continued to live, just how no one seems to know. Through the passing years those in charge of the property issued every form of security then known to human beings, with the exception perhaps of trading stamps which had not then been invented. It is said that during the World's Fair at Chicago in 1893, someone proposed putting in the Transportation Building an exhibition of all Erie securities then outstanding but the project was obliged to be given up for lack of space.

Finally, as they say in the movies, Came the Dawn. It is a far journey from then to now but we have to take it in a jump. John Bernet took over the rusty, rumbling old property and what he did to it in a couple of years was astonishing. We have told the tale already in other issues. As we remember it now the first thing Mr. Bernet did was to scrap 400 obsolete locomotives, order 115 others rebuilt, and replace those discarded with the best locomotives he could buy.

No finer demonstration has been given, perhaps, not at least in this country, proving the economy of scrapping old machinery for new in the interest of efficiency, which means good service, satisfied customers and increased revenue. Enlarged receipts, as any of us know, mean dividends instead of deficits. Turn back in your files of Transportation and read the tale in the September, 1928, issue. It might help you in some of your problems.

Ideas

The man who has one new idea every month is unusual. Contented men seldom have ideas worth considering. There is no particular reason why they should strive for new things when they are already contented. Then, too, new, constructive ideas, are rare and very often quite costly. Another thing about new ideas: They seem to make everything else shabby and out of date, as when a new piece of furniture is added to a room already filled with old possessions.

Don't Be a Do-Nothing

"If you're going to get fired," said President Hannauer of the Boston & Maine to the students in the Massachusetts Institute of Technology, "for heaven's sake get fired for doing something, not for doing nothing."

That is good advice. Many a man goes sauntering his way through life wondering why he is always picked for release when the staff is reduced, forgetting the moments and hours he wasted in attending to his cigaret or other equally important personal matters. The late Elbert Hubbard used to say, "If you're working for a man for goodness sake work for him; work for him when he is absent the same as when he is watching you."

"Don't be a 'Yes' man and don't make 'Yes' men out of your associates. Build up individuality," said Mr. Hannauer.

The smartest executives today are men who always are eager to hear the suggestions and opinions of their employes. If you have an opinion don't hide it. Tell the boss about it. If he gets sore about it tell him where to go. There always is a place for the man with worthwhile suggestions and opinions. If you worry too much about your job you won't have it very long.

Two Winners in Old Missouri

If we were controller of the Kansas City Southern Ry. we should feel just a teeney bit scary about our job. This official doubtless knows—what we have just discovered—that he has an office boy who *thinks,* a rare thing in these jazzy days.

In the June issue of Transportation we printed an editorial paragraph bearing the title, "Can You Solve This?" in which we said:

> Government-operated railways in Brazil recorded a deficit in 1928 of $1,020,000. The Central of Brazil, privately owned, had a surplus of $216,000 in the same period. The first paid no taxes or interest. The second did both. A new Falcon pen-point and a pad of yellow or blue scratch paper will be awarded the person giving the most plausible reason for this difference in results.

This good natured inquiry had not been in circulation much more than a week when along came this letter bearing the imprint of the office of the controller, Kansas City Southern Ry., at Kansas City, Mo. In the upper left-hand corner of the letter head are the names and titles of the officials in that department. To this imposing list, giving it new dignity, had been added, in typewriter, the good American name of Ray Cole, Office Boy.

This is just as it should be. It seems to us a peculiar lack of propriety to leave off the controller's letter head the name of his office boy. Doesn't Mr. Hensley know that the names of office boys who have risen to high positions in this country would fill a column of this magazine? We suggest he re-read the Little Stories About Big Men printed in these pages in the last two years. And here, gentlemen, is the Office Boy's reply to our question:

> This is my answer to the question that was printed in the June, 1929, edition of Transportation magazine on page 56 under the head of, "Can You Solve This?"
>
> It has been my understanding that any company or corporation under government control or operation always has an overloaded payroll which will make expenses run exceedingly high. The reason for an overloaded payroll is that there is always a great deal of favoritism in giving people jobs or positions because of work done in elections and things of that sort. Very often jobs are created just to repay some one for the work that they have done in helping a political party. Although I do not know that this is the case in Brazil, it is more or less done in the United States.
>
> Perhaps the road was or is in such a poor condition that the operating expenses ran so high that it was impossible to make it pay.
>
> The real reason I think is inefficiency. The Brazilian government needs some Good Yankee Railroad Men. I am sure that they could straighten things out so even the government could make money.

Isn't that good, sound common sense; we ask you? Then, in a few days, came another reply, this one from a grown-up. It is from J. H. Christie of Wester Groves, Mo. Mr. Christie says.

> The same employes, possessing the same intelligence, the same experience and ability, operated the railroads under government and under private control.
>
> That was the case in Brazil and in this country.
>
> There were no physical conditions, of the railroad properties influencing successful or unsuccessful management.
>
> Failure in one case and success in the other, under similar conditions, was due entirely to the urge, the intent, interest and the will to put the same personal individual forces into effect that would insure success in both cases.
>
> The mental hookworm of "working for the government" paralyzed individual ambition and was the determining factor in both Brazil and the United States.

The Falcon pen points and paper pads promised will be sent to Mr. Cole and Mr. Christie within a few days.

A Complete City Trolley Service Going Aboard At Eddystone, Pa., for Brazil. Equipment From the J. G. Brill Company.

Paying By Results

A PLAN for paying employes by results instead merely for the time they put in and a summary of the many activities affecting the welfare of workers, such as pensions, group life and disability insurance savings under the G. E. Employes Securities Corpn., financing of homes and the plan for paying for suggestions are presented by President Gerard Swope in the annual report of the General Electric Co. for 1928. Mr. Swope says:

"Earnings of the workers are studied to identify those who are making the highest earnings and to retain them and give them greater opportunities either for earning more or for promotion to supervisory work, as the company's interest lies in obtaining the best and most highly skilled workmen and supervisors in order to give the best service and increase the productiveness of its capital investment.

"Employes long in the service of the company have acquired experience and greater skill and consequently have more value. There is also less chance of their leaving, with a resulting decrease in labor turnover and a substantial saving of expense. Because of this all employes, not in higher salaried positions, with five or more years service, are paid supplementary compensation of 5 per cent of their annual earnings. This payment is made semi-annually in cash, or in bonds of the G. E. Employes Securities Corpn., at the option of the employes."

More Motor Vehicles

The registration of motor vehicles in the United States in 1928 showed a gain of 5.9 per cent, totalling 24,493,124 or an increase of 1,359,883 compared with the figures for the preceding year, the bureau of public roads, department of agriculture announced April 6. Estimating the population of the United States in 1928 at 120,013,000 there now is one motor vehicle for every five persons in the United States, one for every family.

New York heads the list for 1928 with 2,083,942 vehicles registered. California is second with 1,799,890; Ohio is third with 1,649,699; Pennsylvania is fourth with 1,642,207; Illinois is fifth with 1,504,359; Michigan sixth with 1,249,221; Texas seventh with 1,214,297; Indiana eighth with 823,806; New Jersey ninth with 758,430, and Wisconsin tenth with 742,135.

In percentage gain Arizona ranks first with 16 per cent. The District of Columbia is second with 13 per cent. Mississippi and South Dakota each report a gain of 12 per cent; New Mexico, Alabama and Connecticut report 10 per cent; Tennessee and Texas report 9 per cent, and South Carolina, Vermont, Wyoming, North Dakota, Michigan and Delaware report 8 per cent.

From the owners of 24,493,124 motor vehicles, the states and the District of Columbia collected in license fees, registration fees, permit charges, fines, etc., the sum of $322,630,025. This is $21,568,893 more than was collected in 1927 and an increase of more than 7 per cent.

If I were An Apprentice

I would first of all have faith in my work and in my fellow men.

I would analyze my trade and ascertain what a competent journeyman ought to know, so that I may waste no time working in the wrong direction.

I would observe the skillful journeyman perform a difficult piece of work, so that I may know what to do when later the same work comes to me.

I would never hesitate a second to admit making a mistake and to take the consequences.

I would not complain every time I am given a disagreeable job.

I would not lose the respect of my fellow men by fawning on my superiors.

I would strive to gain the confidence of my superiors by doing my work right and not depend on the inspector to find any mistakes.

I would at all times be a gentleman in the shop as well as on the street.

I would seek out the difficult type of work and shun the "soft job."

I would spend my evenings profitably by cultivating my mind in reading good books.

I would see in my trade a stepping stone to something higher than a mere means of making a living.

I would endeavor to be everything that goes to make up a good citizen in my community.

I would recognize once and for all time that I still have much to learn.

—*The Wisconsin Apprentice*

Little Stories About Big Men

If ever a man's life was founded upon or guided by what is called hunches it certainly was true in the strange career of the late Arthur E. Stilwell who died a year ago. In his time he was worth millions and controlled many more of them; and when he died he left only one thousand dollars.

You won't find in all history or biography a story approaching even remotely the peculiar elements of Arthur Stilwell's. Tall, handsome, well built, immaculate, a good dresser, he might have been a great success on the stage in the character of promoter but not of the Wallingford type. Arthur Stilwell was a picturesque figure in railroad finance, and an ideal gentleman. He was a marvel in his specialty, inspiring everyone around him with confidence and optimism. Like his dress, his manners were irreproachable. Necessarily, he was a good talker, but never an intruder, never loud or boisterous.

After he had retired Mr. Stilwell disclosed the fact that his greatest achievements were instigated purely by hunches. He said at that time—it was in 1920—that he believed his hunches to have been spirit messages. He called the unseen beings, which he insisted had counseled him in business and personal affairs, his "Brownies."

During the World War, the financier declared, he was endowed with enlarged vision and through spirit messages many novels and plays were dictated to him. He said he had been told of battles days before they occurred.

The mysterious "sixth sense" that Stilwell possessed manifested itself when he was a boy. He was an invalid as a child and went to school very little. When 15 years old, he announced to his parents that he had seen the girl he would marry four years later. He did not even know her name and had not talked to her, but he was positive. And four years later the two were married.

Hamblin Stilwell, the boy's grandfather, was one of the builders of the Erie canal. Young Arthur used to go to New York frequently with him to see the big men of the city, among them Commodore Vanderbilt. One day, after the two had been talking to the commodore, the old man asked his grandson what he would do when he grew up. In a flash the youngster replied:

"I am going west and build a railroad." And he did, not one, but several. All in all, he constructed 3,000 miles, one of the great achievements of the century.

The Late A. E. Stilwell

Stilwell's father lost his money when the boy was in his early teens and from that time on the lad made his own way. He clerked in a brokerage office. He became a printer. He was a commercial traveler. He went to selling insurance.

In the insurance field he was particularly fortunate. He designed new policies and originated methods. He was headed straight for the presidency of the Travelers company, when a hunch took hold of him and without a second thought he left insurance for railroad building. All the money he had was $25,000. He quit his job and went west.

St. Louis and Kansas City welcomed the young man of dreams, and in a year he had organized a million dollar trust company. He was 27. Unknown and unaided, he jumped into the battle and promoted a cool million, $300,000 of which was subscribed by financiers in the ultra-cautious city of Philadelphia.

That was the first step in the building of a railroad. The second step was taken after the trust company was in successful operation. E. L. Martin, who had been mayor of Kansas City, was a director. He was the owner of a franchise to build a belt line around the eastern and southern parts of the city.

Out of a clear sky, one day, Martin asked Stilwell if he would be interested in building a railroad. Would he, indeed? Another hunch took root in the young man's brain and that same night he and Martin left for Philadelphia.

On the way east the two men worked out details of the proposed line. For the financing Stilwell decided that one million dollars in six per cent bonds would be sold, along with two million dollars in common stock. It was up to him to sell the bonds and the stock, and he did, in jig time—and in Philadelphia. The Kansas City Suburban Belt railroad was built.

Business was not so good as expected. Stilwell had another hunch. He laid out an amusement park and in no time the good people of Kansas City were making it a habit to go out to Fairmount park for the ride and the entertainment. The new line prospered from then on.

This however, was not the railroad that Stilwell had in mind. His plan for the railroad that was to become the Kansas City Southern materialized at once. The sum needed was two and one-half million dollars. He raised every dollar of it himself. Hunches told him who would buy the bonds and stock.

The road extended from Kansas City to Joplin, Mo. This was not enough. Stilwell, who had been made president, determined to carry it south to Shreveport, La., where it would connect with the Southern Pacific and the Houston, East & West Texas, and be, in effect, a line to the sea, which was his dream.

Stilwell's railroad operations grew rapidly and at length it was decided to take over the Houston, East & West Texas.

Nearly everything was settled when the promoter had a dream. He saw a city of 100,000 on the north bank of Lake Sabine, which could be connected with the Gulf of Mexico by

First Omnibus in London, Run by George Shillibeer, Between Paddington and the Bank in July, 1829. The Event Is to be Celebrated This Month.

means of a canal. The dream had fixed in Stilwell's mind the necessity of a landlocked harbor, instead of the unprotected port of Galveston.

The city of Port Arthur was founded. The line was pushed along from Shreveport. And on the day that tools were laid aside and the city of Port Arthur stood as an unobstructed outlet for export shipments, Galveston was laid waste by the terrible tidal wave. It was the culmination of one of Stilwell's strangest hunches.

Then came the hunch about building a line to Mexico, and the Kansas City, Mexico & Orient Railway came into existence—on paper. It had a troubled life. Bad times, a panic, impatient investors abroad, a tight money market, everything seemed to operate against Stilwell's dream coming true. Kansas City, and particularly the late William Rockhill Nelson, owner of The Kansas City Star, believed in him. Pretty nearly everyone, for that matter believed in Arthur Stilwell, but no one, in those days, ever mentioned his hunches or his spirit messages or the brownies. Such things do not tend, usually, to support a lagging venture.

Finally the day came as it always does in such cases when Stilwell needed more capital for the Orient line. Investors in Holland and England were acting catty. No one would put up another dollar.

The brownies didn't seem to be on the job. "For once," said Mr. Stilwell to a reporter with whom he was friendly, "for once I seem to be up against it. I don't know just what to do."

"It seems to me" said the reporter, "that the people of Kansas City are eager to help if we could only get them together in a hall and induce you to talk to them. We ought to have a meeting."

"I think you're right," said Mr. Stilwell. "But I can't call a meeting; that would be bad manners, and it might be a confession of weakness."

"O, sure," said the reporter. "I never even dreamed of anything so coarse. I'm going to arrange this meeting myself and you'll be invited to address the multitude."

That evening the popular newspaper announced on the front page, that it had been suggested a meeting be held in Convention Hall on a date ten days away to discuss the Orient railway and what it would mean to Kansas City. Arthur Stilwell, it was rumored, was to be asked to speak.

The next day's paper carried a little interview with Mr. Stilwell in which he said that while he had intended sailing for Europe immediately he would consent to remain for the public meeting. It was very fine loyalty on the city's part, he said, to show this keen interest in the proposed line. The secretary of the Chamber of Commerce, declared it was all news to him, but he certainly favored the idea. He couldn't say anything else. He thought Mr. Stilwell ought to stay and attend. No one seemed to know who had called the meeting but everyone favored it. The rent for Convention Hall was $500 a night and it was paid, but no one except the reporter knew by whom.

The big night came. The hall was practically filled—and it seats about 12,000. Ten days' advertising had proved the value of ink and a resourceful reporter. The best part of the whole story, though, is the fact that not a soul, the owner and the editors of the newspaper included, had the faintest suspicion that the call was not a genuine expression of public demand to participate in this great undertaking. Even Mr. Stilwell believed, before it was over, that the movement had been discovered by the reporter and was spontaneous.

It was a great success. Mr. Stilwell appeared amid prolonged applause. There were no amplifiers in those days, but his voice nevertheless reached every ear and into a good many pockets. When one of the "preliminary" speakers said he believed it unfair for Mr. Stilwell to build this great railroad without letting his home town folk in on the ground floor there was an instant response from the audience. Mr. Stilwell denied any intention of disloyalty to Kansas City. It had all been business with him, and business and sentiment seldom mixed well. At this point the reporter, from some obscure point in the great audience, demanded to know as a taxpaying citizen, and he wanted a plain answer, please, whether Kansas City people were to be allowed to buy stock in the new road and on what terms. Perhaps Mr. Stilwell wouldn't mind saying just why Holland and England were to own a Kansas City property.

It went over great. The Orient was built—almost. Its subsequent stormy history is another story. It ought to be written by the man who knows it best—William T. Kemper. What the road is to be in the future will depend on its purchasers, the Atchison, Topeka & Santa Fe Ry. Co. In this chapter W. B. Storey, the president, seems to have a hunch that the Orient may some day be a very important link in the chain that company is forging from Chicago to the Mexican gulf.

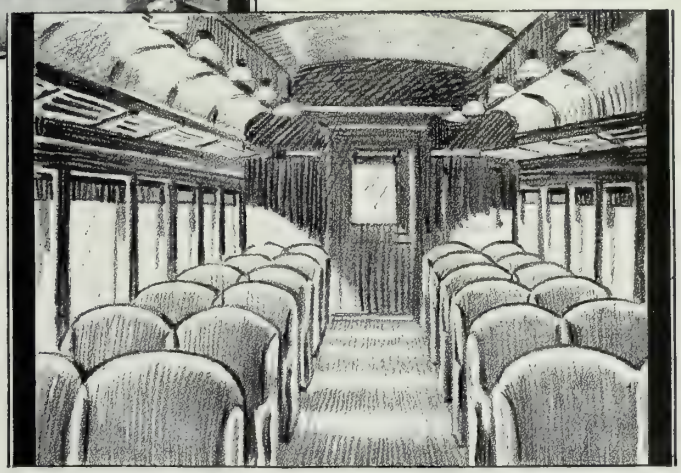
The Versatile G. B. E.

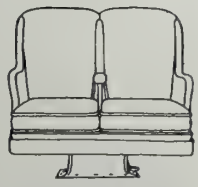
A writing man has a fine time of it trying to classify the president of the Atlantic Coast Line Railroad. So far as a careful inventory could disclose the facts, there seems to be no one in a similar position with just the same kind of educational and training background as one finds recorded in the imperishable archives of George E. Elliott's life.

In the beginning of railroading in

MUST COMFORT *be* CONFINED *to* NEW CARS ONLY?.....

The car above once exemplified the height of luxury and comfort. But comfort is judged by new standards today.





H. & K. ROTATING CHAIR NO. 900
As suitable in rebuilt cars as in the newest of your coaches.

THERE are many operators who have serviceable cars and who are not, as yet, ready to purchase new equipment. They find, meanwhile, that they must compete with roads which attract new riders by their comfortable seats. A large percentage of these serviceable cars can and should be equipped with modern Hale and Kilburn Seats. Hale and Kilburn seating engineers will be glad to inspect all cars that you consider worthy of rehabilitation and to present, for each, a comfortable seating plan. This will help you to put *all* cars—old and new—on a basis which competes in modern traveling comfort.

HALE & KILBURN SEATS

"A Better Seat for Every Type of Modern Transportation Service"

HALE & KILBURN COMPANY

General Office and Works: 1800 Lehigh Avenue, Philadelphia

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Hale & Kilburn Co., Graybar Bldg., New York.
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H. M. Euler, 146 N. Sixth St., Portland, Oregon

this much-loved land of the so-called free the heads of our dinky little railroads came from several departments of business and industry. The first president of the first real railroad, the Baltimore & Ohio, was Philip E. Thomas, a merchant and banker, as interestingly set forth in Edward Hungerford's Story of the Baltimore & Ohio Railroad. Bankers and important merchants seemed to lead in these things for quite a while, at least until someone had been in the game long enough to be called an operating man. Then, for years, we had operating men and civil engineers for presidents.

We may be wrong, but we doubt it—such things are difficult to run down in history—when we say that the legal-president, the man trained for the law, did not appear in his present executive capacity until well along in the present generation. He came into his honors as an answer to the railroad stockholders' prayer, and his job was and is today that of seeing a legislative trap sooner than any one else, or at least just about as soon, and then jumping his party over or around it. No operating man, naturally timid and sympathetic in his own element and trusting everyone, ever could have steered the railroad barque safely through the breakers of restrictive legal entanglements and continued to give the public good service. The metaphor may seem a bit confused but really it is all right. What was needed in steam transportation was a group of railroad presidents sufficiently well-informed in law to fight a way for their properties through a mass of governmental regulation, federal and state, and several were elected by perspiring boards of directors here and there for just that work.

The national spasm of regulation began in the states with boards of commissioners, far back in the '70s—Ohio probably was the first and Illinois the second, or maybe it was the other way round. It doesn't matter. Regulation began just in time to help along the confusion of the big railroad panic of 1873, and in the midst of the hubbub what do you think happened? George B. Elliott was born at Norfolk, Va! That was in March, '73. He was too young that spring to express an opinion about the over-building of rail lines, but a good friend declares that in the following fall George was heard to complain bitterly about the foolishness of over-doing things in transportation. Furthermore, this friend says the youngster insisted that if he lived to take over the Atlantic Coast Line he intended to see to it that all such things were properly managed in the future. He did live and prosper, but whatever happened between his earliest school days and the summer of 1892 is a deep mystery to this writer. Some time in his snuffles years he must have gone to school because nothing more is recorded about him until he came up for air in 1892 as a graduate C. E. from the Virginia Military Institute. Elliott must have been gifted with foresight because the record shows he didn't stay out of school very long. Indeed, he must have hopped right into Harvard Law School because we find him emerging in 1896 with a B.L. degree, and boys don't get such things until they work hard for them, three or four years any way. These dates may be getting a bit thick for you, but they're all right. George took his law, apparently, and a job on the Chesapeake & Ohio at the same time because the veracious chronicles of the day show that in September, 1892, he got a job on the C & O as an assistant resident engineer. In August, 1896 he appears as a special attorney for the Atlantic Coast Line; became assistant general counsel in February, 1906; February, 1916, to November, 1918, general counsel; then vice president, and finally, in April, 1928, he shows up as president. And there he is today.

George B. Elliott

Now we must be much more dignified. We have encountered a list of the companies, corporations, concerns and what not of which this gentleman is either director, vice president or president, in addition to the impressive presidency of the Atlantic Coast Line System, and the thing is simply deafening. There are lines and lines of it in 8-point Roman, old style, solid, indent both sides, until we simply haven't the space for it.

What we like most about George Elliott's history is the assurance by friends that he is human, a regular fellow, likes to fish, and on a camping trip doesn't let the other guys get all the wood, do all the cooking and wash all the dishes. Maybe this is true. For our part we never have seen that kind of man. Someone says he spends a good bit of time in his workshop where he likes to dub around with tools. He is a crackerjack lawyer, according to them that knows, and he plays an "all round" game of golf, all round meaning he plays the ball all round the course, and frequently comes home with the one he had when he started.

George Elliott has the respect of everyone in his region and the affection of a good many. Engineer, lawyer, executive, corking good operating man, the son of a former railroad president, Warren G. Elliott, he is right where he belongs, and this ought to spell happiness.

The business world imagines a man must stand well with the bankers to get along as a railroad executive. Maybe so. But if he can't gain and keep the good regard of his own employes all the bankers this side of Berlin couldn't save his job. He might just as well quit. It is the supreme test. George Elliott has taken it and come out with good grades. "He's sure an all-right guy," was the verdict of seven train men encountered one evening in Wilmington. "I want to tell you about the time——."

But this would take too much space. "Lemme tell you," said another, "this man is all right. Put that in your magazine. Did you ever hear this one:

The son of a railroad president,
Popular far and near.
You can't hand him any hokum, son,
He's a lawyer and engineer.

Keep Out Planes

The board of directors of the old Westbury Golf club, adjacent to Roosevelt flying field on Long Island, has voted to erect a steel fence, 2,000 feet long and 125 feet high to keep out airplanes. The fence will cost about $500,000.

Pennsylvania Railroad
Electric and Paint Shops
Wilmington, Delaware

Unequalled Experience in CONSTRUCTION WORK *for* RAILROADS

The long experience of this organization in railroad work—our intimate knowledge of a railroad's problems—are proven by the construction of 22 locomotive terminals, 34 shops, 43 power plants and many passenger and freight terminals and other general building and engineering assignments.

In almost every case enumerated, we did the design as well as the construction—cooperating to the fullest extent with the client's own engineering department and producing the new facilities with speed at low cost.

UNITED ENGINEERS & CONSTRUCTORS, INC
Specialists in the design and construction of
SHOPS
LOCOMOTIVE TERMINALS
PASSENGER TERMINALS
POWER PLANTS
ELECTRIFICATION
PRODUCE TERMINALS
OFFICE BUILDINGS

Among our many railroad clients have been the following:

Atlantic Coast Line Railroad
Baltimore & Ohio Railroad
Boston & Maine Railroad
Buffalo, Rochester & Pittsburgh Railway
Canadian Pacific Railway
Central Railroad of New Jersey
Chesapeake & Ohio Railway
Chicago, Burlington & Quincy Railroad
Chicago, Rock Island & Pacific Railway
Chicago & Alton Railroad
Chicago & Eastern Illinois Railroad
Chicago and Northwestern Railway
Clinchfield Railroad
Erie Railroad
Great Northern Railway
Illinois Central Railroad
Lehigh Valley Railroad
Missouri Pacific Railroad
Mobile & Ohio Railroad
Pennsylvania Railroad
Pittsburgh & Shawmut Railroad
Reading Company
Rutland Railroad
Southern Pacific Lines
Southern Railway
Terminal Railroad Assoc. of St. Louis
Union Pacific Railroad
Wabash Railway

UNITED ENGINEERS & CONSTRUCTORS
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NEW YORK PHILADELPHIA NEWARK CHICAGO
LOS ANGELES BUENOS AIRES RIO DE JANEIRO MONTREAL

MAXIMUM RETURN TO CLIENTS PER DOLLAR INVESTED

(Continued from Page 18)

held up for analysis in the discussion the great mineralized area made accessible by the laying of the steel rails. According to the Natural Resources Service of the department of the interior of Canada there is a single belt 125 miles long, and from 25 to 40 miles wide, extending east and west from Herb Lake, Man., to Amisk Lake, Saskatchewan, and crossing the Saskatchewan-Manitoba boundary just south of Latitude 55. This is known as The Pas Mineral Belt.

In a general way the geology that characterizes this region is carried much farther, and has been traced in a general way east as far as God's Lake, Hayes River, and west to Lac la Longe, Churchill River. The formation is similar to the mineralized portions of Northern Ontario; and thus far the outstanding discoveries have been gold and copper.

Concrete Piers for the Bridge Across the Limestone River on the Hudson Bay Line.

The two principal mines that have attempted production on a large scale are the Flin Flon and the Sherritt-Gordon. A 90-mile branch was built to the former mine in just eight months. All supplies were freighted in over the snow on big tractors, capable of carrying eight tons of freight on their own bodies while hauling a string of loaded sleds, averaging from 40 to 60 tons a load. These made a round trip of 120 miles in about 18 hours and worked day and night.

Where they were handicapped then by the softness of the muskeg bogs they more than made up by using modern equipment for taking in supplies. Even airplanes were used to a lesser extent in hauling freight and to a greater extent more recently in making a survey of part of the land, studying the terrain for possible water sites. Landings were made on frozen rivers and lakes.

The present line of tracks to Fort Churchill is only a skeleton line but it will be brought up to regular Canadian National branch line standard by late summer after considerable ballast work has been completed. And by fall, it is hoped, it will be in operation for general traffic.

Saniservis

Sanitation Service

PAPER TOWEL VENDING MACHINE

The Saniservis Paper Towel Vending Machine fills a long felt need in the public washroom. The public, which has been accustomed to pay a nickel for a cloth towel or go without, can obtain for one cent a large well-made, absorbent paper towel. The public appreciates the cleanliness and the thoughtfulness of this service, and the railroads derive a substantial profit.

WEST DISINFECTING COMPANY

H. E. Daniels, Manager

RAILROAD DEPARTMENT

Railway Exchange Bldg. CHICAGO — Long Island City New York

Branches and Offices in 42 Principal Cities

The Ogle "Direct Coaler." Is also used as a transfer plant for bad order cars. Is fully automatic and delivers one ton of coal per trip of the bucket. Initial cost very low considering high qualities of material and equipment.

A 50 ton, 2 track, main line plant for coaling locomotives assigned to long runs. Designed and constructed throughout in strict accordance with A. R. E. A. specifications and equipped with automatic skip hoist machinery that provides a hoisting capacity of 30 tons per hour.

IT'S THE little things THAT COUNT!

And it is at those places where only a few locomotives are coaled daily and where manual or other expensive coal handling methods are employed that coaling costs count up.

Are there any such points on your line? Have you ever tried to replace those expensive methods with labor saving appliances only to find that the investment cost of dependable, mechanical facilities exceeded their estimated operating economies?

Many railway executives have. Some are using the Ogle Small Capacity Low Cost Coaling Station and find it is just what they wanted—a thoroughly reliable, full automatic, skip hoist coaling station that effects pronounced economies at points where from 5 to 15 locomotives are coaled daily.

One of these Ogle Plants, handling only 50 tons of coal per day, cut coal handling costs from 28c to 10c per ton. It is a 50 ton single track steel plant which, after allowing for depreciation and maintenance is showing a return of 23 1/3% on the investment.

Isn't that real economy? Are there any points on your line where you would like to effect similar savings? If so, it will be to your advantage to obtain complete information on this efficient little Ogle Plant.

OGLE CONSTRUCTION CO.

Coaling Station Specialists Since 1911

28 East Jackson Boulevard

Chicago

Large Modern Coaling Stations

When it comes to large, modern coaling stations, none is too big or complicated for Ogle Engineers. They have engaged in locomotive coaling station engineering for 23 years. They were important factors in the inception of the mechanical coaling station and since 1911 have specialized in designing and constructing the Skip Hoist or Balanced Bucket Type. They have constructed nearly 600 plants for 66 railroads and have acquired broad experience in satisfactorily solving many of the complex problems of modern coaling service.

So, no matter what your coaling station problem may be, whether it involves only a simple, single track facility, an intricate 2 level coaler as disclosed by the second photograph, or a combined skip hoist-tram car coal and sand handling plant similar to the 9 track installation illustrated below, you can safely entrust it to Ogle Engineers.

OGLE CONSTRUCTION CO.

CHICAGO

Designers and Builders of

Coaling Stations :-: Ash Handling Plants

Sand Handling Facilities

New Engineering Firm Announced

F. H. McGraw At the Head

A REPORTER, keen for news, strolled into the office of a great engineer in New York one day, many years ago, and put the usual, rubber-stamp question.

"Not a thing," was the reply. "I don't believe there's a place in New York where there's less going on than right here."

"What are these whopping big blue prints then?" inquired the reporter, eager, as usual, not to pry into another man's business.

"O, those? Those are plans for a skyscraper," smiled the big chief. "Think they'll be approved this afternoon. Going to call it the Woolworth Tower. I believe we shall——."

But the reporter had fled. And this is a commonplace experience in the offices of engineers. They know news, all right, but like all or most scientific men they are buried up to their eyebrows in facts and figures and give precious little thought to publicity.

So, when a representative of Transportation was told, a few weeks ago, by a certain engineer that he hadn't a thing on his mind for publication, that he hadn't heard any news for years and years, but that he would have to get back to his office for a conference to close up the details in the organizing of a new engineering firm that was starting its career with contracts worth $10,000,000 — well, the magazine man just kept still except to ask an occasional question.

Nothing going on—nothing new in the engineering field. And what was this conference to be about?

Nothing much. A new firm had been organized, that's all. F. H. McGraw & Company, with offices at 51 East 42nd Street, New York. The new organization consists of Frank H. McGraw, James C. Boyd, Harry A. Brinkerhoff, George Burgess and Hamilton E. Smith.

Frank McGraw scarcely needs any introduction to this audience. You have known him a long time. For the benefit of the rising generation we should let the record show, however, that he has been identified with Westinghouse, Church, Kerr & Company, Dwight P. Robinson & Company, and the United Engineers & Constructors for the past 27 years, the last eleven of which he has served as construction manager.

Frank H. McGraw.

James Boyd was vice-president of the Westinghouse, Church, Kerr & Company during the ten years preceding its amalgamation with Dwight P. Robinson & Company, and has had extensive experience in engineering and construction work.

Harry A. Brinkerhoff also grew up with the old Westinghouse organization, was city manager of Portland, Me., for five years, and during the past year has been with the United Engineers & Constructors.

So much for the buildings and such things — engineers simply must have them or sink, like the rest of us. But there is a more human aspect. It is plentiful in the life of Frank McGraw away from his work. The most important event in his life took place at Hollidaysburg, Pa., where he was born July 25, 1871. Most successful men begin their careers as telegraphers or farm boys. Frank chose the later route, and being of Scotch-Irish parentage, he worked hard. He knew what was coming if he let down any on the job. He worked hard, and he had precious little schooling; what is referred to as "limited," and it ended when he was fourteen. The rest of his education was in what is referred to as the "School of Hard Knocks", an institution that must have had an extremely large enrollment—like the Mayflower's passenger list. Certainly it has graduated many a serious-minded citizen. The course teaches the real value of a dollar, and equips its students early in life to detect buncombe and make-believe among

HOW SKF...

The Railroad Anti-Friction JOURNAL BEARING

On Passenger Cars

In 1921 SKF first applied its self-aligning journal bearing to railroad passenger coaches—the first successful installation in this country. These original cars are still running.

On Engine Trucks

Adequate lubrication has always been a problem on engine trucks. Rapidly growing lateral has also been most troublesome. Both these difficulties were immediately eliminated by the SKF Journal Bearing. This pioneer application of anti-friction bearings to the locomotive has today made 160,000 miles of successful service.

On Auxiliary Locomotives

On the main journals of the Bethlehem Auxiliary Locomotive space limitations plus a high axle load complicates the bearing problem. Here again SKF worked out a suitable bearing.

On Valve Gears

On the "Union Pacific" type locomotives being built by the American Locomotive Company for the Union Pacific Railroad, steam distribution to the third cylinder is controlled by the Gresly Valve Gear.

Slack and wear if permitted to accumulate would seriously reduce the effectiveness of steam distribution.

Six SKF Anti-Friction Bearings applied to long and short transverse rods protect the gear from such an occurrence.

The Reason Behind These Results

The fundamental reason for the success of the SKF Journal Bearing in railroad service is its great flexibility.

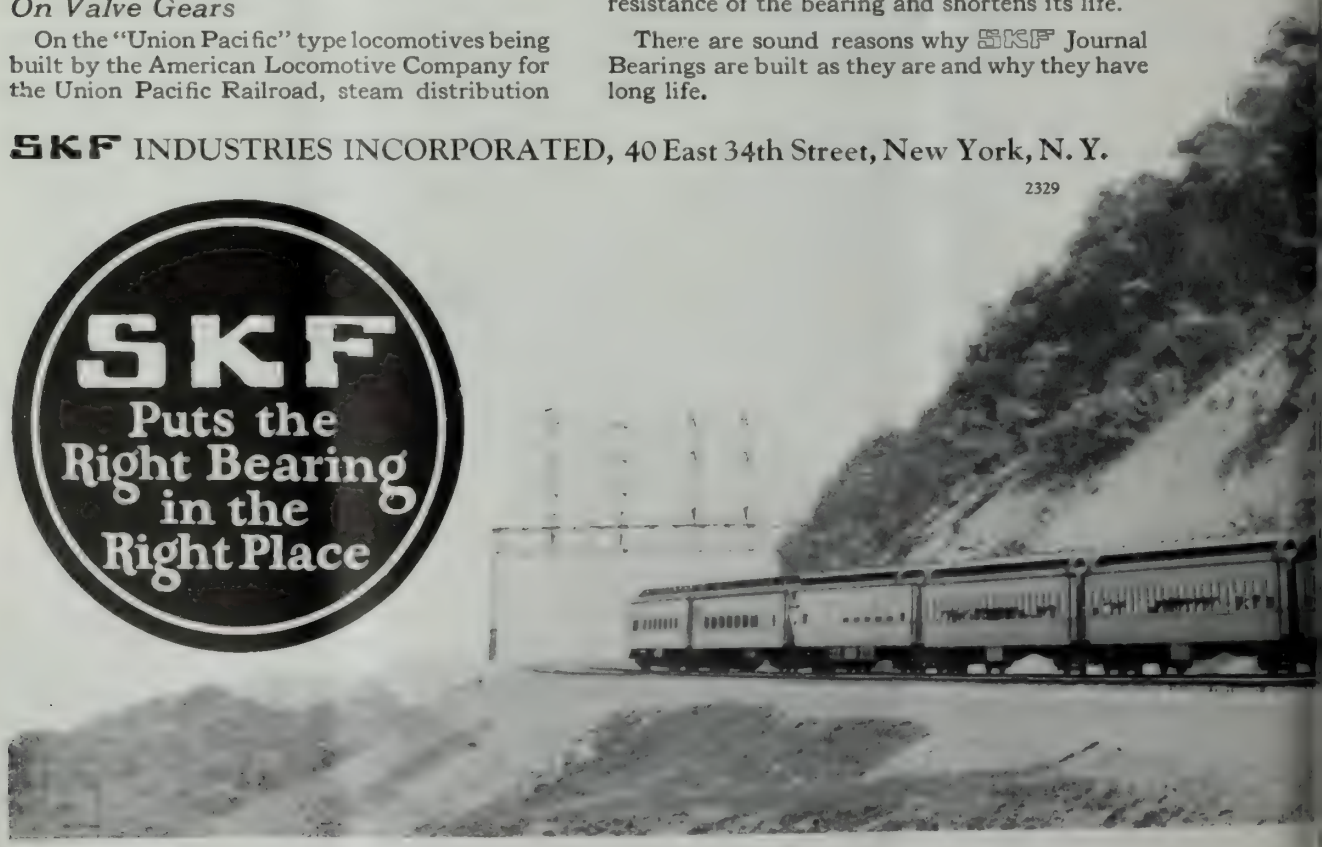
Since SKF Bearings are completely self-aligning, they distribute the load equally at all times over two rows of rollers. Without this self-alignment, uneven load distribution may occur, resulting in a lowering of the effective bearing capacity as much as 50%.

Such a concentration of load reduces the fatigue resistance of the bearing and shortens its life.

There are sound reasons why SKF Journal Bearings are built as they are and why they have long life.

SKF INDUSTRIES INCORPORATED, 40 East 34th Street, New York, N. Y.

2329



....DEVELOPED

men they meet along the way.

Frank McGraw's employes like him, speak well of him, declare he is a straight-shooter, a square guy with everyone, and these terms mean much despite their inelegance. He likes sailing and is a good swimmer, but doesn't play golf, so we are spared the risk of printing his score. He can run a locomotive, too, as well as look through a transit.

In 1889 he became a rodman on the Pennsylvania Railroad and the following year an electrician apprentice at the Juniata shops. He entered the employ of Westinghouse, Church, Kerr & Company in 1902. With this organization he served as superintendent on such jobs as the construction of the Long Island Railroad power house extension and electrification of the First Zone; the construction of the Boston & Albany shops at Springfield; extensive construction work on the Chesapeake & Ohio, including the construction of the Huntington shop, engine terminal facilities, yard improvements, etc., at various points in Ohio, and, for the Central of New Jersey, the service power plant, the railway post office building, and the Communipaw engine terminal. He was superintendent of construction of the first commercial potash plant in the United States built at Marysvale, Utah, and of the Essington plant of the Westinghouse, Electric & Manufacturing Company. During the eleven years that he served as construction manager of Westinghouse, Church, Kerr & Co., and Dwight P. Robinson & Company, the U. S. Nitrate Plant No. 2 at Muscle Shoals, the Chicago & Alton freight terminal at Chicago, several acid and fertilizer plants for the Armour Fertilizer Works, the London Guarantee & Accident building on Michigan avenue in Chicago, the shops for the Southern Railway at Birmingham and Spartanburg, and extensions to American Rolling Mill Company's facilities at Middletown, Zanesville and Ashland, as well as many other extensive projects were constructed.

Mr. McGraw is popular with his associates, and with the men he employs, who know they will get a square deal if they do their work right. He throws his entire energy and ability into the job at hand and expects his men to do the same. He has almost an uncanny mind for construction details and accuracy is his boon companion and password.

F. H. McGraw & Company, start the ball rolling in a most auspicious fashion, having secured contracts for construction and engineering work which total in excess of ten millions of dollars.

The News of the Month

What's Been Going on in Transportation, Railroads, Automotive, Supply, Aviation

ABOUT 625 members of the American Association of Railroad Superintendents, with the families of those who had them, were the guests of the government at Mexico City, June 4 to 7, for the 36th yearly convention. Canada and the United States were represented in two special trains of 16 and 17 cars respectively, provided by the Missouri Pacific, the Texas & Pacific and the National Railways of Mexico. Sessions were held in the National Palace in response to the invitation of President Portes Gil, and were presided over by T. B. Wilson, president of the association and vice president and general manager of the Southern Pacific Motor Transport Co., San Francisco.

The convention was received officially by President Gil and his wife, and by governors of all states through which their trains passed. After the addresses of welcome by various government officers, President Wilson delivered his yearly report of the association's activities, after which J. Rothschild, secretary-treasurer, told the convention that the rolls contain 2,152 members, an increase of 57 in the year.

Various reports and papers were presented and discussed. A report on the problem of making up trains for prompt and efficient movement was made by a committee with A. G. Peck, general agent, Missouri-Kansas-Texas as chairman. The importance of the proper classification of trains at the initial terminal, so as to avoid delays at intermediate points, was emphasized. As a part of the report of committee No. 1 of the Signal Section, A. R. A., a paper on train control was read by George E. Ellis, secretary, automatic train control committee. In a paper presented in both Spanish and English, B. H. Mann, consulting signal engineer, Missouri Pacific, emphasized the importance of studying the cause of train delays as a means of eliminating them. Harry Guilbert, director of safety of the Pullman Company, delivered an address, "Why Pullman Travel is Safe." Other reports included the problems of grade crossing protection, elimination of waste, operation of trains by signal indication, form of daily operating data, and public relations.

J. J. Franco, general superintendent, National Railways of Mexico, Mexico, D. F., was elected president; C. E. Brower, general superintendent of transportation, A. B. & C. Atlanta, first vice president; F. O. Whiteman, superintendent freight and service, East St. Louis & Suburban, East St. Louis, second vice president; C. Forrester, superintendent Canadian National, London, Ont., third vice president; Victor Parvin, general manager, Ann Arbor, Owosso, Mich., fourth vice president, and J. Rothschild, St. Louis, secretary-treasurer. The next meeting will be held at Minneapolis.

Lackawanna Starts Electrification

The sinking of spades in the ground simultaneously, adjacent to the train sheds of the Hoboken terminal, the Montclair station and in the meadow between Hoboken and Newark, by squads of workmen employed by the Lackawanna the first of July, marked the start of the electrification of the Morris & Essex division between Hoboken and Dover, the Montclair branch and the Passaic & Delaware between Summit and Gladstone, a total of 78 miles of road and 173 miles of track. The excavation work has to do with the concrete foundations which will support the overhead structural work for the catenary system.

Detailed specifications are in the hands of manufacturers of equipment who shortly will submit proposals covering the necessary steel for the supporting structures, for 141 new all-steel coaches with motor equipment, for the re-construction of 141 of the latest model of the present steel coaches, as well as for the electrical apparatus for the necessary sub and tie stations to be at Bergen Junction, Newark, Summit, Denville and

WHY NOT USE ALL THE POWER YOU PAY FOR?

This is not a "catch" question. It goes seriously to the heart of the subject of what a locomotive is for.

It has been definitely established that every locomotive, irrespective of its age or design, has an unused capacity to deliver ton miles per hour, amounting to more than 10% of the maximum results which are now being obtained from it, due to lack of standardized engine MAN performance.

If you can USE this heretofore unproductive latent asset there will result large returns in:

1. **Fuel economy.**
2. **Better train speed.**
3. **Elimination of pushers.**
4. **More tonnage.**
5. **More uniform operation.**
6. **Better and more economical transportation service, and**
7. **Better balance sheets.**

This latent power has now definitely been put to work with these stated results. Entirely new principles, startling to some, but proven in service beyond question and embodied in the LOCO VALVE PILOT, are responsible.

Send for copy of "Railway Fuel Economy"

Cut-Off and Speed Recorder Corp.
230 Park Avenue,
New York City

Bernardsville. Contracts for the required electrical energy, covering a period of 20 years, have been made with the Public Service Electric & Gas Co., the Jersey Central Power & Light Co., and the New Jersey Power & Light Co., respectively.

Freight Section A.R.A. Meets

The freight section of the American Railway Association held its annual convention in Denver, June 18 to 21. Three hundred and eighty-four men registered, 226 bringing their wives, and many the children. R. H. Aishton of Washington delivered one of the principal addresses, crediting the association for its good work in preventing car shortages, and praised the freight agents for the able manner in which they handle the public and have won its favor. There are about 15,000 shipping organizations in America, he said, working in harmony with the railroads and the association. Important papers were read covering icing, ventilation, perishables, car inspection, demurrage, etc. These officers were elected: W. H. George of St. Louis, chairman; G. R. Littell, Cleveland, first vice chairman; W. A. Merriam, Oakland, Cal., second vice chairman; R. O. Wells, Chicago, re-elected secretary.

The executive committee: J. B. O'Brien, New Haven, New England district; C. C. Kinney, Philadelphia, eastern; M. G. Carson, Louisville, southeastern; O. M. Hullinger, Chicago, central; R. E. Palmer, Oklahoma City, southwestern; J. H. Mahoney, Des Moines, northwestern; E. L. Begun, Los Angeles, Pacific Coast; A. M. Adams, Toronto, northern. The next meeting place will be announced later.

Union Pacific Takes Over Bus Lines

The Union Pacific system has taken over three big motorbus systems operating in Kansas, Iowa, Minnesota, Missouri and Nebraska. The lines purchased are the Interstate Transit lines, Cornhusker Stage lines, and the Queen City Coach lines.

The Interstate buses operate between Omaha and Sioux City, Iowa, Lincoln, Fremont, Wahoo, Kansas City, Mo., Fairmont, Minn.; from Lincoln to Freemont, Grand Island and Nebraska City, and from Fremont to Norfolk and Dodge, Neb. The Cornhuskers buses operate between Nebraska points, and the Queen City buses run out of Beatrice to Lincoln, Neb., Marysville, Kansas, Fairbury, and Pawnee City, Neb. The lines operate a total of 80 motor coaches.

The lines will retain their present organizations, the former owners, Russell J. Walsh of the Interstate lines, Oliver W. Townsend of the Cornhusker lines, and E. J. Delehant of the Queen City lines, remaining as presidents and general managers.

Taxes Exceed Fuel Expense

Expenditures made by Class I railroads in 1928 for taxes, including federal, state and local taxes, were the largest for any year on record, according to reports just filed by the carriers. During the calendar year, $389,432,403 were expended for this purpose, an increase of $509,547 over the previous high record established in 1926, and an increase of $13,322,153 over 1927. Out of each dollar of gross revenue in 1928, the railroads paid six and two-fifths cents in taxes, which for the first time exceeded the amount spent for fuel. Of expenditures made out of gross revenue last year, the tax bill of the railroads was exceeded only by two other items, labor requiring 43 cents out of each dollar of gross revenue and materials and supplies requiring 18 1/5 cents.

Judgment to S. P.

The Southern Pacific has been awarded a judgment of $1,007,000 by the United States court of claims as compensation for its services in preventing a flood in the Imperial Valley of California in 1907. When the Colorado River threatened to overflow the valley, the railroad responded to a request of President Roosevelt for cooperation in closing a break in the bank of the river. The railroad's original bill for services was $1,200,000, while the government claimed that $867,000 was due.

Wisconsin Coach and Air Bill Signed

Under the provisions of a bill signed by the governor of Wisconsin, the steam railroads in that state are authorized to own and operate motor coaches and engage in air transportation.

Final Valuations Being Made

Having practically completed the underlying work of railroad valuation, the work of the engineers and accountants of the Interstate Commerce Commission's bureau of valuation from now on will consist of bringing valuations up to date by the use of the new material filed by the roads on property added up to the end of 1927. Under the method adopted by the commission in the O'Fallon case, this would have consisted of adding the cost of net property changes, with allowance for depreciation, to the basic valuation. The court's decision will require the commission also to add an undetermined amount to the basic figures for the original property. Prior to the court's decision in the O'Fallon case, the commission had informed the house appropriations committee that it might be able to complete by 1931 the work of bringing the basic valuations up to the end of 1917. The court's decision entails more work than was expected, however, and unless larger appropriations are made by congress, further delay will attend placing "final" valuations on railroad properties.

Human Relations in Industry

The Young Men's Christian Associations have announced that the eighth annual school and week-end conference for industrial, railroad and business executives will be held July 22 to 28 at Estes Park, Colo. This year there will be a six-period course for foremen, taught by Edward I. Watson, and group meetings for discussion of special problems arranged by industries. Information regarding the program and accommodations can be secured from Ira E. Lute, Y. M. C. A., Denver

In New York the conference will be held at Silver Bay on Lake George from August 28 to September 1. The conference last year was very successful, over 600 representatives from many industries attending, and this year's program should bring out a still greater attendance. Full details can be secured from Fred H. Rindge, Jr., whose address is National Council, Y. M. C. A., 347 Madison ave., New York. The conference will be preceded by courses on industrial leadership to be held at the same place from August 20 to 28.

Revenue Freight Loadings

Loading of revenue freight for the week ending June 22 totaled 1,069,046 cars, according to the car service division of the A. R. A. This was an increase of 81,686 cars compared with the corresponding week of last year, and of 50,986 over 1927. The total for this year up until June 22 was 24,501,214, an increase of 1,043,140 over the same period in 1928, and of 1,612 cars over 1927.

All districts reported increases in the total loading of all commodities compared with the same week in 1928, while all, except the Pocahontas and Southern reported increases compared with the same week in 1927.

Estimated Increase in Tonnage

Shippers of the country, through estimates of the shippers' regional advisory boards, expect that carload shipments of the 29 principal commodities in July, August and September will be approximately 9,816,948 cars, an increase of 632,287 cars above the corresponding period of 1928 or 6.9 per cent, the Car Service division of the A. R. A. has announced. The only boards estimating a decrease are the Southwest and Pacific Northwest, both of which expect only a small reduction.

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Railway Construction

Tracks & Yards

ALABAMA.—The Southern has awarded a contract to Walter T. Weaver, Birmingham, for a retaining wall along the tracks of the Alabama Great Southern at Birmingham, estimated to cost $100,000.

—The St. Louis Southwestern has awarded a contract to Winston Brothers, St. Paul, for an extension between Hornersville and Leachville, Ark., 11 miles.

MARYLAND.—The city council of Baltimore has approved three ordinances presented by the Pennsylvania permitting improvements to its lines running through the city, estimated to involve an expenditure of about $22,000,000.

NEW YORK.—The New York Central has been granted an extension to January 1, 1931, of the time within which the electrification of the west side freight line in New York, between Seventy-second St. and Spuyten Duyvil, shall be completed. This company has been authorized to construct a cut-off on its Putnam division in Westchester county, from a point about a mile south of Briarcliff Manor to about one-quarter mile south of East View, 4.6 miles, and upon the completion of this line to abandon the existing line between these points. The new line will save 1.4 miles, reduce grades, and eliminate a number of grade crossings. The property involved in the change is owned by John D. Rockefeller, Jr., James Stillman and the Briarcliff Realty Co., who will donate the necessary right-of-way. Mr. Rockefeller, it is said will contribute two-thirds of the cost of construction of the new line; the estimated cost of which is $1,192,000.

—United Engineers & Constructors, Inc., Philadelphia, through its Dwight P. Robinson division, has a contract to extend the main line of the N. Y., Westchester & Boston about two miles from Rye to Port Chester. The cost will be approximately $1,000,000.

OREGON.—The Spokane, Portland & Seattle plans to build 69 miles of line in Linn county, to serve a timber area estimated to contain 30,000,000,000 board feet. The cost, including 41 miles of main line and 28 miles of branch line, will be about $3,00,000. The project involves the use of the Southern Pacific between Albany and Lebanon, 12 miles.

TEXAS.—The Santa Fe has let a contract to the Lone Star Construction Co., San Antonio, for a 65-mile extension of the Kansas City, Mexico & Orient from San Angelo to Sonora. The contract includes grading, bridging, placing of culverts, fencing, track laying and surfacing and construction of buildings.

—Authorization has been received by the San Antonio, Uvalde & Gulf for a branch from Brundage, southwesterly 4.7 miles; estimated cost, $61,669.

VIRGINIA.—The Prince George & Chesterfield, a subsidiary of the Seaboard Air Line, has awarded a contract to the MacDougald Construction Co., Atlanta, for a line to connect with the Seaboard Air Line at Bellwood, and extend to Hopewell 16½ miles. The contract calls for approximately 4 miles of yard and side tracks and a steel drawbridge over the Appomattox River, in addition to the main line of the road. The project, which is expected to cost about $1,000,000, will be started at once.

Buildings & Structures

ARKANSAS. — Texarkana. The St. Louis Southwestern Transportation Co. has awarded a contract for 3 motor coach shop buildings to Bailey, Burns & Fitzpatrick, Dallas, to cost approximately $150,000. A contract for a running repair shop, freight station, wash rack and storage building was awarded to Campbell & White, Tyler.

CALIFORNIA.—Stockton. The Southern Pacific will build a combination passenger station and office building, to cost $300,000. The office section of the building will be above the station and will serve as headquarters for the Stockton division.

CANADA.—Ont., Hamilton. The Roberts & Schaefer Co., Chicago, has a contract from the Toronto, Hamilton & Buffalo for a 300 ton capacity, three-track coaling and sanding plant and a three-track "N & W" type multiple track electric cinder handling plant.

KENTUCKY.—Louisville. The United Engineers & Constructors, Inc., of Philadelphia, will construct an 11-story office building for the Louisville & Nashville. The building will adjoin the railroad company's present office building and be connected with it.

MICHIGAN.—Detroit. The Detroit & Toledo Shore Line has awarded a contract to H. W. McKenzie, Detroit, for a grade separation structure over Southfield road at Ecorse station, to cost about $190,000.

MISSOURI.—St. Louis. A contract has been awarded by the Terminal Railroad Association to Dwight P. Robinson & Co., New York, for a one-story brick and concrete storage building, 45 by 173 ft. The cost is estimated at $45,000.

NEVADA.—Carlin. The Southern Pacific will build an employes club house, to cost about $77,000. The building will provide beds for 63 employes in addition to dining and club rooms.

NEW YORK.—Crown Point. The Delaware & Hudson is said to be preparing plans to eliminate a highway grade crossing about three miles south of Crown Point, at an estimated cost of $123,000.

OHIO.—Cincinnati. The Cincinnati Union Terminal has asked for bids for the grading for the site for the new terminal project in the Mill Creek bottoms. The work involves the placing of approximately 6,000,000 cubic yards of earth.

—Lorain. The Nickel Plate has let a contract to the Roberts & Schaefer Co. for a "N & W" type direct electric engine coaler.

PENNSYLVANIA.—Johnstone. The Roberts and Schaefer Company has a contract from the Bethlehem Steel Co. for a reinforced concrete coaling station to include a 100-ton gravity sand handling plant.

—Susquehanna. The Erie has let a contract to Senior & Palmer, New York, for work in connection with the reconstruction of its shops. The project includes the rebuilding of several existing units and the construction of additional buildings. The cost, together with equipment, is estimated at $378,000.

VIRGINIA.—Richmond. The Chesapeake & Ohio has awarded a contract to Joseph E. Nelson & Sons, Chicago, for an oil house, power plant and coach wheel pit, to cost approximately $85,000.

WEST VIRGINIA. — Hinton. The Chesapeake & Ohio has received bids for an engine terminal.

WISCONSIN.—Milwaukee. The Milwaukee has awarded a contract to the Foundation Company, New York, for an addition to the car repair facilities at the West Milwaukee shops.

Locomotive Orders

According to reports filed with the A. R. A., locomotives on order June 1, numbered 324. On the same day last year there were 113 on order.

The American Locomotive Company received the following orders: Bangor & Aroostook, four 4-8-2 type; Crossett Western, one 2-8-2 type; Delaware & Hudson, one 2-8-0 type; Standard Oil

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HIS time proven iron possesses every characteristic essential to perfect staybolt performance. It consistently delivers maximum efficiency at minimum maintenance.

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EWALD IRON COMPANY

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Co. of N. J., one switcher; Timken Roller Bearing Co., one experimental locomotive. Baldwin received orders from the Calumet & Hecla Consolidated Copper Co., one switcher; Edward Hines Lumber Co., one locomotive; Illinois Northern, one switcher. Baldwin also received orders for five electric locomotives to be built in conjunction with Westinghouse for foreign account. Lima received an order from the Pittsburgh & Lake Erie for 25 heavy type switchers. The Canadian Pacific ordered ten 4-6-4 type from the Montreal Locomotive Works. The Canadian National ordered mechanical parts for one oil-electric switcher from the Canadian Locomotive Co., the electrical equipment to be furnished by Westinghouse.

The Great Northern is inquiring for 12 4-8-4 type; Northern Pacific, 11 Mallet type; Savannah & Georgia, three switchers and two 2-8-2 type; Wabash, 25 2-8-2 type with an alternate inquiry for 24 4-8-2 type. It is reported that the New York Central is in the market for 42 electric locomotives of the 0-6-6-0 type and the Ford Motor Co. for six switchers. The Illinois Central ordered five oil-electric locomotives from Ingersoll-Rand Co. and General Electric Co.

Passenger Car Orders

Orders for passenger cars placed since the June issue of Transportation include the following: New Haven, 70 coaches, 24 smoking cars, and six motor baggage cars with Osgood-Bradley Car Co., 15 baggage and mail cars with Bethlehem Steel Co., and six dining cars with Pullman Car & Mfg. Corpn.; Nickel Plate, eight coaches, five baggage cars, three dining cars, two cafe cars, two baggage and express cars, and one baggage and mail car with Pullman Car & Mfg. Corpn.; Chicago & North Western, four suburban coaches with Standard Steel Car Co., and five steel horse cars with American Car & Fdy. Co.; Chicago, North Shore & Milwaukee, 25 interurban coaches with Standard Steel Car Co.; International Railways of Central America, eight second hand passenger cars with American Car & Fdy. Co.; Norfolk & Western, ten steel box express cars with its Roanoke shops; Pennsylvania, 25 horse express cars with its Altoona shops. It is reported that the Pennsylvania also will build three dining cars and four cafe cars at Altoona. The Quebec Railway, Light & Power Co. ordered six interurban type cars and 15 city service type cars; Regina Municipal Railway, seven city service cars and the Saskatoon Municipal Railway, five city service cars, all from the Ottawa Car Mfg. Co. The Scranton Railway ordered ten cars and the Union Street Railway, New Bedford, Mass., 12 cars, both orders having been placed with the Osgood-Bradley Car Co.

The Lackawanna is asking for bids on 141 new all steel coaches with motor equipment and the reconstruction of 141 steel coaches to be used as trailers, and two steel mail and baggage cars; Detroit, Toledo & Ironton, three oil-electric rail motor cars; Erie, five gas-electric rail motor cars; Minneapolis & St. Louis, three passenger, mail and baggage rail motor cars.

Freight Car Orders

Freight cars on order on June 1, 1929, by the railroads of this country totaled 40,484, compared with 20,712 on the same date last year, according to reports received from the carriers by the A. R. A. On May 1, this year, 44,429 freight cars were on order.

Of the freight cars on order June 1, 1929, reports showed 17,630 were box cars, an increase of 8,145 compared with the same date last year. Coal cars for which orders have been placed number 19,111, an increase of 14,523, compared with last year. Reductions, for the most part small, were reported in the number of refrigerator and other kinds of freight cars on order this year, compared with one year ago, except stock cars, which showed a slight increase.

The Lackawanna is inquiring for 1000 box cars and 250 steel hopper bottom coal cars; New Haven, from one to 50 hopper bottom cars; Reading Co., 200 gondola cars; Cities Service Tank Line, four tank cars; Donner Steel Co., Buffalo, 12 gondola cars; General Chemical Co., 36 tank cars; National Lead Co., one tank car; Texas Company, six gondola cars; United Fruit Co., 50 banana cars; United States Navy Dept., Bureau of Supplies and Accounts, one tank car for carrying Helium gas.

The outstanding orders of the month are those of the Pennsylvania for 4000 steel box car bodies and the Boston & Maine for 1000 box cars. The Pennsylvania order was placed as follows: 1000 with Pressed Steel Car Co.; 900 with American Car & Fdy. Co.; 800 with Ralston Steel Car Co.; 700 with Pullman Car & Mfg. Corpn.; 600 with Standard Steel Car Co. It is reported that the Pennsylvania is contemplating the purchase of an additional 4000 steel box car bodies. The Boston & Maine order was placed with Standard Steel Car Co. Other orders include the following: Buffalo & Susquehanna, 200 steel hopper cars with Pressed Steel Car Co.; Braden Copper Co., three tank cars with General American Tank Car Corpn.; Carnegie Steel Co., 22 gondola car bodies; Central Maine Power Co., six air dump cars with Koppel Industrial Car & Equipment Co.; Fruit Growers Express, 172 underframes with Ryan Car Co.; Federal Enameling & Stamping Co., three air dump cars with Koppel Industrial Car & Equipment Co.; A. Guthrie & Co., six air dump cars with Koppel Industrial Car & Equipment Co.; High Point, Thomasville and Denton, 25 steel furniture cars with Standard Steel Car Co.; Lehigh Coal & Navigation Co., seven air dump cars with Western Wheeled Scraper Co.; Manila Railroad, 100 flat cars and 100 box cars with Gregg Co.; Northern Pacific, 100 flat cars with Pressed Steel Car Co.; Pennsylvania, 50 caboose cars at Altoona shops and 30 air dump cars with Koppel Industrial Car & Equipment Co.; Pittsburgh Steel Co., 10 gondola cars with Warren Tank Car Co.; United States Navy Dept., one flat car with American Car & Fdy. Co.; Van Camp Sand & Gravel Co., two air dump cars with Koppel Industrial Car & Equipment Co.; Youngstown Sheet & Tube Co., two air dump cars with Koppel Industrial Car & Equipment Co.; Frisco, underframes and superstructure parts for 10 box cars with American Car & Fdy. Co.; Seaboard Air Line, conversion of 300 plain gondola cars into hopper bottom cars with Richmond Car Works.

Bus and Truck Orders

Recent bus orders and deliveries include the following: Alabama Power Co., one White Model 50B bus; Albany Transit Co., two 29-passenger Mack city type buses: Atlantic & Pacific Stages of St. Louis, five Mack observation parlor car buses; Atlantic City & Shore Line Railway, seven Type X-29 Yellow coaches; Atlantic Stages Inc. of Philadelphia, seven Mack parlor car buses; Baltimore & Ohio, two Type Y Yellow parlor coaches; Blue Club Coach Lines of Bridgeport, Conn., 12 29-passenger Mack parlor car buses; Boston Elevated Railway, nine Twin Coach urban coaches; Burlington Transportation Co., 20 Type W Yellow parlor coaches; Canadian-New York Coach Lines, two Twin Coach parlor coaches; Central Transportation Co., Chicago, one Type Y Yellow parlor coach; Citizens Transit Co., Oil City, Pa., one A. C. F. urban coach; Connecticut Company, five 29-passenger Mack city type buses; Detroit Motorbus Co., six Twin Coach urban coaches; Fonda, Johnstone & Gloversville Railroad Co., four 25-passenger Mack city type buses; Interstate Transit Inc. of Cincinnati, three Mack Model BK bus chassis; Milwaukee Electric Railway & Light Co., five Twin Coach urban coaches; Missouri Pacific Transportation Co., one Type Y and four Type W Yellow parlor

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coaches, four Model 65 and two Model 54 White coaches, and one 29-passenger A. C. F. parlor coach; Montreal Tramways, eight Fitzjohn coach bodies mounted on Reo chassis; Northland Transportation Co., six Type Y Yellow coaches; Pacific Northwest Traction Co., two 39-passenger White buses and four A. C. F. buses; Reading Transportation Co., two 29-passenger Mack City type buses and five Mack observation parlor car buses; Richmond, Fredericksburg & Potomac, four A. C. F. chassis with Bender Pullman bodies; Rochester Railway Co-ordinated Bus Line Inc., 12 Mack Model AB bus chassis; Savannah Electric & Power Co., five Twin Coach urban coaches; Southern Michigan Transportation Co., five A. C. F. metropolitan type coaches and three A. C. F. parlor coaches; Southern Pacific Motor Transport Co., two Fageol parlor coaches; Tacoma Bus Co., five 29-passenger Mack city type buses; Tomas & Co., 10 Mack Model AB bus chassis; Union Pacific, three Type W Yellow parlor coaches, five Model 65 White coaches and five Type W Yellow observation coaches; Union Pacific Stages, Boise, two Twin Coach suburban express; Wisconsin Power & Light Co., seven 23-passenger Yellow coaches.

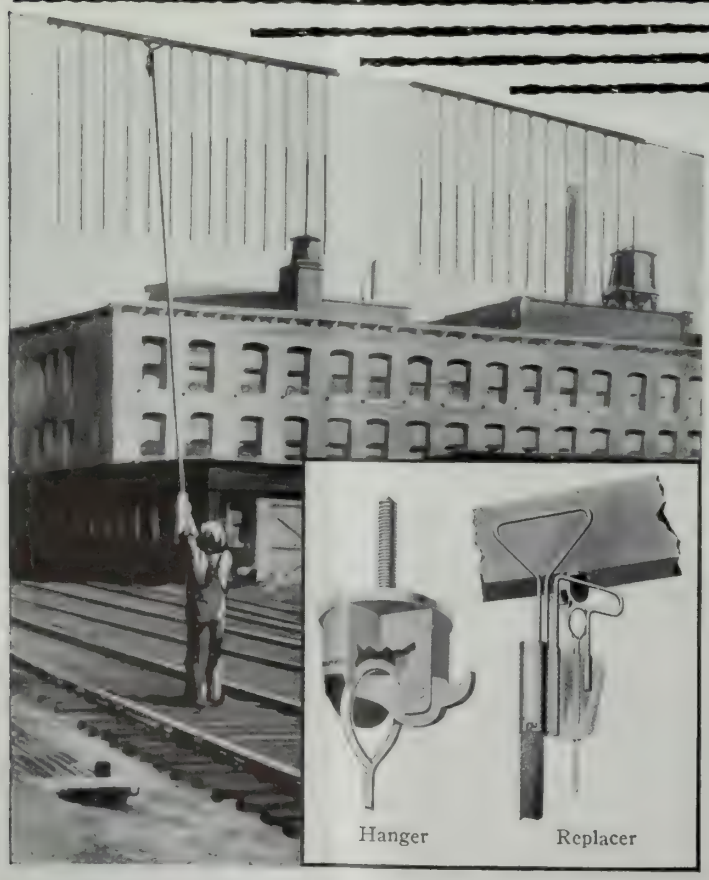
Changes in Personnel

Executive & Operative

J. H. Howard, assistant to the vice president in charge of traffic of the Milwaukee, has been appointed manager of the Western Weighing & Inspection Bureau with headquarters at Chicago, to succeed **A. S. Dodge.**

Albion M. Fenton, general freight agent of the Omaha, has been elected vice president in charge of traffic with headquarters as before, at St. Paul. Mr. Fenton has been connected with the Omaha for 42 years. He was born at Cresco, Ia., 1869, and entered railway service on the Soo Line as a telegraph operator and agent when he was 23 years old.

T. B. Hamilton, vice president in charge of the western region of the Pennsylvania, with headquarters at Chicago, has been appointed vice president at Chicago. **H. E. Newcomet,** general manager at Chicago, has been appointed vice president in charge of the western region to succeed Mr. Hamilton. Mr. Newcomet will be succeeded by **W. C. Higginbottom,** general superintendent, northwestern division at Chicago. Mr. Higginbotton will be succeeded at Chicago by **W. S. Franklin,** general agent at Detroit, who in turn will be succeeded by **W. M. Wardrop,** general superintendent, southern division at Wilmington. Mr. Wardrop's title, however, will be assistant vice president and general agent. **C. E. Whitlock,** general superintendent, southwestern division, Indianapolis, becomes general superintendent, southern division at Wilmington. **O. P. Reese,** general superintendent of motive power, central region at Pittsburgh, will succeed Mr. Whitlock as general superintendent at Indianapolis. Other appointments are as follows: **J. A. Appleton,** acting general superin-



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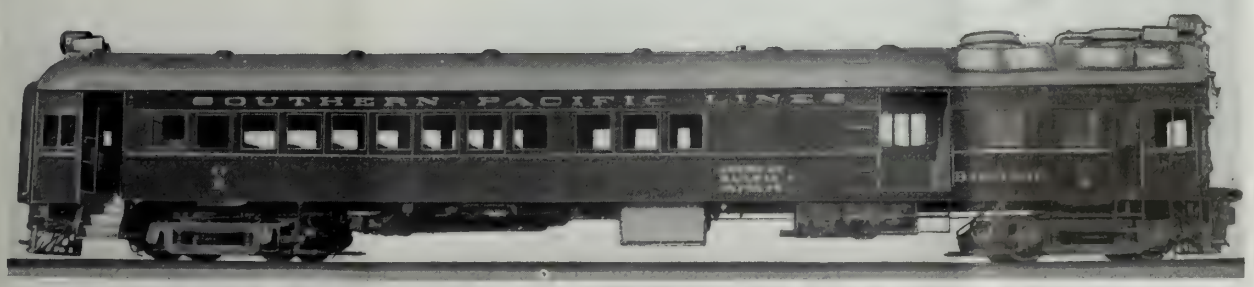

BRILL SELF-PROPELLED CARS

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tendent of the Lake division; **F. L. Dobson**, acting superintendent of the Pittsburgh division; **Raymond Swenk**, superintendent of the Cleveland division; **H. T. Frushour**, superintendent of the Erie & Ashtabula division; **J. C. Poffenberger**, superintendent of the Monogahela division.

R. N. Hudson, president and general manager of the Louisville, Henderson & St. Louis, which is now being operated as the Owensboro division of the Louisville & Nashville, has been appointed staff officer of operation of the Louisville & Nashville, with headquarters at Louisville. Mr. Hudson will have jurisdiction over the new division.

F. C. Batchelder, vice president and executive representative at Chicago of the Baltimore & Ohio, and president of its subsidiary, the Baltimore & Ohio Chicago Terminal Railroad, retired June 15 after 55 years of railroading. Mr. Batchelder will be succeeded in both positions by **H. B. Voorhees**, general manager of western lines of the B. & O. at Cincinnati. Mr. Batchelder was born in All River, Wis., in 1857, and educated in the district schools there. When he was 16 he started railroading as a telegrapher on the Milwaukee, and later became agent, train dispatcher and chief train dispatcher. He joined the Soo Line as chief train dispatcher in 1888, later being made assistant superintendent. Mr. Batchelder became superintendent on the B. & O. in 1899, was appointed general superintendent, assistant to the president, and, in 1912, was elected president of the Baltimore & Ohio Chicago Terminal. He became vice president and executive representative at Chicago in 1915.

Mr. Voorhees entered railroad service as assistant supervisor of the Philadelphia & Reading at Tamaqua, Pa. He began with the B. & O. as assistant engineer at Pittsburgh in 1901, and was, successively, assistant to the general superintendent, superintendent, general agent and asistant to the president. Mr. Voorhees then was appointed general superintendent of transportation, general superintendent of the

H. B. Voorhees

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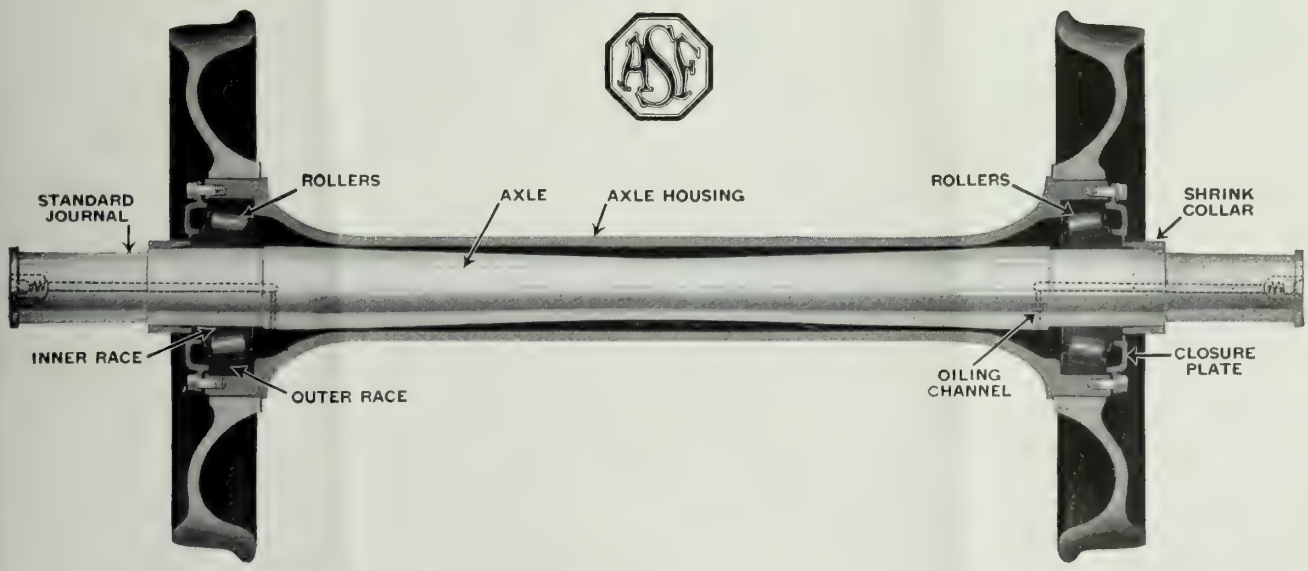

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Left to Right: F. B. Mitchell; R. B. Mann; D. F. Stevens; W. E. Duffey; John Hewes, Jr.

southwest district, and general superintendent of transportation of the Allegheny region, United States railroad administration. He was made general manager of the B. & O. New York Terminal Lines and vice president and general manager of the Staten Island Rapid Transit Ry. in 1919, being transferred to general manager of western lines at Cincinnati in 1923.

C. W. Van Horn, general superintendent of transportation of the B. & O. at Baltimore since 1926, has been appointed general manager of western lines at Cincinnati to succeed Mr. Voorhees. Mr. Van Horn entered the service of the B. & O. as a clerk in 1901. He held, successively, these positions: agent at Byron, Flemington, and Clarksburg, W. Va.; general yard master at Clarksburg; trainmaster of the Monongah division at Clarksburg; chief clerk to the general superintendent at Baltimore; trainmaster at Chicago and Willard, O.; assistant superintendent of the Pittsburgh division; superintendent of the Monongah division; superintendent of the Cumberland division; general superintendent of the Maryland district, and, in 1926, general superintendent of transportation. Mr. Van Horn was born at Clarksburg in 1879 and educated in the public schools and at Salem College.

D. F. Stevens, general superintendent of the northwest district of the B. & O. at Cleveland, has been named to succeed Mr. Van Horn and will be succeeded by **F. B. Mitchell,** general superintendent of the southwest district at Cincinnati. **R. B. Mann,** superintendent of transportation at Cincinnati since 1924, has been named general superintendent of the southwest district at Cincinnati to succeed Mr. Mitchell. Mr. Mitchell will be succeeded by **C. R. Elkins,** transportation assistant at Pittsburgh. **John Hewes, Jr.,** assistant superintendent of the Akron division, has been named to succeed Mr. Elkins at Pittsburgh. **W. E. Duffey,** supervisor of fast freight operation at Baltimore, has been appointed to the newly created position of transportation assistant at Detroit.

The Burlington has made the following appointments: **Warren E. Fuller,** assistant to the executive vice president, with headquarters at Chicago, succeeding **E. M. Fairfield,** deceased; **G. L. Griggs,** superintendent of the Galesburg division at Galesburg, Ill.; **W. E. Haist,** superintendent of the Beardstown division at Beardstown, Ill.; **H. C. Murphy,** superintendent of the Creston division at Creston, Ia.; **M. B. Lamb,** superintendent of the Centerville division at Centerville, Ia.

Mortimer Silverman, assistant to the president of the Boston & Maine, with headquarters at Boston, has resigned to become chief engineer and assistant to the president of the United Merchants' & Manufacturers' Corpn.

D. W. Pontius, vice president and general manager of the Pacific Electric Railway Co. at Los Angeles, a subsidiary of the Southern Pacific, has been named president. **A. T. Mercier,** president of the San Diego & Arizona, with headquarters at San Diego, also a S. P. subsidiary, has been named to succeed Mr. Pontius at Los Angeles. Mr. Mercier will be succeeded at San Diego by **F. L. Annable,** general superintendent of the Pacific Electric at Los Angeles.

F. R. Pechin, general manager of the Omaha, has been elected vice president in charge of operation, a newly created position, with headquarters as before, at St. Paul. **Carl R. Gray, Jr.,** manager of the industrial department of the Chicago & North Western at Chicago, succeeds Mr. Pechin.

P. C. Clemmensen, agent for the Atlantic Northern, at Atlantic, Ia., has been appointed general manager, succeeding **C. E. Spar,** deceased.

W. C. Franz, vice president and general manager of the Algoma Eastern at Sault Ste. Marie, has been elected president and general manager with the same headquarters, succeeding **Robert Dodd,** resigned. **J. D. Jones** has been elected vice president.

George D. Ogden, traffic manager of the eastern region of the Pennsylvania, has been appointed assistant vice president in charge of traffic at New York.

Frank H. Alfred, president and general manager of the Pere Marquette, has been appointed operating vice president with headquarters as before, at Detroit. This appointment was made in accordance with the policy of having the Pere Marquette, the Hocking Valley, and the Chesapeake & Ohio under one executive head with J. J. Bernet as president.

L. C. Probert, vice president of the Erie, at New York, has been appointed vice president of the Chesapeake & Ohio, the Hocking Valley, and the Pere Marquette, with headquarters at Cleveland.

Robert C. Falconer, assistant vice president and chief engineer of the Erie, has been appointed assistant vice president in charge of engineering with headquarters as before, at New York. **J. M. Condon,** general manager of the New York district at Jersey City, has been appointed assistant vice president at New York. Mr. Condon has been in railway service 29 years. **H. J. Bordwell,** assistant general manager of the Eastern district at Hornell, succeeds Mr. Condon as general manager of the New York district. **H. R. Adams,** assistant general manager at Youngstown, has been appointed assistant general manager of the Eastern district at Hornell. **L. L. White** has been appointed assistant general manager at Youngstown; **F. J. Tamplin,** superintendent of the Marion division at Huntington, Ind.; **H. E. Wilson,** superintendent of the Allegheny and Bradford divisions at Salamanca; **J. W. Graves,** trainmaster at Hornell; **F. O. Plummer,** superintendent of the Buffalo and Rochester division at Buffalo, succeeding W. J. English, who has been granted a leave of absence.

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Capacity 140,000 - Load Limit 158,000
Cubic Capacity 2,716 Cu. Ft.
LIGHT WEIGHT 52,000

Wine Type Hopper Car Built for Atchison, Topeka & Santa Fe

by

THE RALSTON STEEL CAR COMPANY

COLUMBUS, OHIO

Builders of Freight Cars for a Quarter of a Century

The
FAIR

Ever Use
FAIR
Rail Anti-Creepers
?

If You Have,
You Found
These Facts
Substantiated

SIMPLICITY
in Construction
in Application

AND

PERFORMANCE
UNEQUALLED

THE P. & M. CO.
CHICAGO NEW YORK

Financial & Legal

C. M. Scott, local treasurer of the Southern Pacific at San Francisco, has in addition been appointed treasurer of the Northwestern Pacific.

Russell M. Wilson, real esate agent of the New Haven, at Boston, has been appointed assistant general real estate agent, with the same headquarters. **E. V. McCargy** succeeds Mr. Wilson as real estate agent.

L. B. da Porte, acting western counsel of the Northern Pacific has been appointed western counsel, with headquarters as before at Seattle.

J. O. Talbott has been appointed assistant controller of the Pere Marquette at Detroit.. **A. C. Rhodes** has been appointed auditor.

Purchases & Stores

L. C. Guernsey, assistant purchasing agent of the Illinois Central, at Chicago, has been appointed assistant to the vice president in charge of purchases, with the same headquarters. Mr. Guernsey will be succeeded by **Leonard L. King,** special assistant to the purchasing agent, who in turn will be succeeded by **P. C. Mayer,** office manager of the purchasing department at Chicago.

George C. Smith, purchasing agent of the Union Pacific, at Omaha, has retired from active duty, at the age of 70 years, after 43 years of continuous service with that railroad. The position of purchasing agent of that unit of the system has been abolished and the duties taken over by the general purchasing agent. **Harold Wilson,** chief clerk to the assistant to the president, has been appointed assistant to the general purchasing agent, with headquarters at Omaha.

Traffic

The Chicago, Indianapolis & Louisville has made these appointments: **Fred W. Kuhn,** general freight agent with headquarters at Chicago; **P. C. Patterson,** general eastern agent, with headquarters at New York; **J. R. Van Delinder,** general freight agent, with headquarters at Chicago; **W. H. Robinson,** assistant general freight agent, with headquarters at Louisville.

A. J. Seitz, general agent, freight department, Union Pacific at Salt Lake City, has been appointed assistant to freight traffic manager, with headquarters at Omaha. Mr. Seitz is succeeded by **B. W. Hanson.**

The Spokane, Portland & Seattle has made these appointments: **J. T. Hardy,** traveling freight and passenger agent with headquarters at Portland; **Frank R. Forbes,** general agent with headquarters at Spokane; **H. W. Shields,** district freight and passenger agent with headquarters at San Francisco.

Ralph H. Eberly, assistant general freight agent of the Seaboard Air Line, with headquarters at Norfolk, has been appointed general freight agent, with headquarters at the same point. Other appointments are: **J. W. Booth,** assistant freight traffic manager at Tampa; **E. J. Parrish,** assistant to the freight traffic manager, with headquarters at Norfolk; **F. H. Bryant,** assistant freight traffic manager at Jacksonville.

J. W. Maguire has been appointed district freight agent of the Canadian Pacific, with headquarters at Hamilton, succeeding **W. J. Grant,** who has retired from the service of that road after having served 46 years.

R. K. Horton, general agent of the New York Central at Buffalo, has been appointed division freight and passenger agent, with headquarters at Corning, N. Y. **T. M. Shalloe** succeeds Mr. Horton as general agent at Buffalo.

C. H. Matthews, Jr., assistant general traffic manager of the Pennsylvania with headquarters at Philadelphia, has been appointed general traffic manager, passenger department, a newly created position. **C. E. McCullough,** general passenger agent at Washington, D. C., has been appointed passenger traffic manager, with headquarters at Chicago. **W. S. Thomas,** division freight agent at Williamsport, has been appointed general freight agent with headquarters at Philadelphia.

Edward A. Donnelly, assistant general freight agent of the Omaha at Minneapolis, has been appointed freight traffic manager, with headquarters at the same point. **Edward L. Pardee,** general passenger agent has been appointed passenger traffic manager with headquarters as before, at St. Paul. **Thomas J. Kenniff,** assistant general freight agent at St. Paul has been appointed general freight agent in charge of traffic with headquarters at the same point.

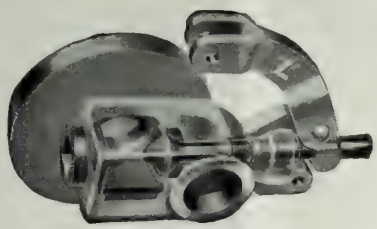
W. J. Northup, commercial agent of the Lackawanna, at New Haven, has been appointed manager of the Lackawanna terminal warehouses, succeeding **William A. Roe,** deceased. **W. K. Martin** succeeds Mr. Northup as commercial agent at New Haven. **William B. Harahan,** secretary to the traffic vice-president has been appointed industrial agent.

Charles H. Ryan, Jr., assistant freight agent of the Louisville & Nashville, has been promoted to general freight agent in charge of solicitation, with headquarters as before, at Louisville. **W. E. Chambers,** general freight agent of the Louisville, Henderson & St. Louis succeeds Mr. Ryan.

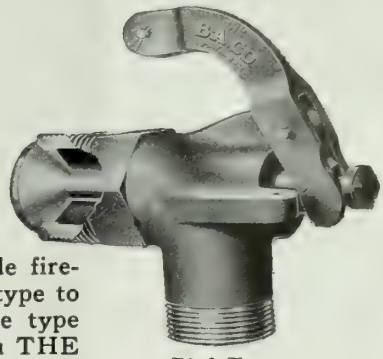
Illustrated on this Page are Four Types of the

BACO

Blow-off Cock



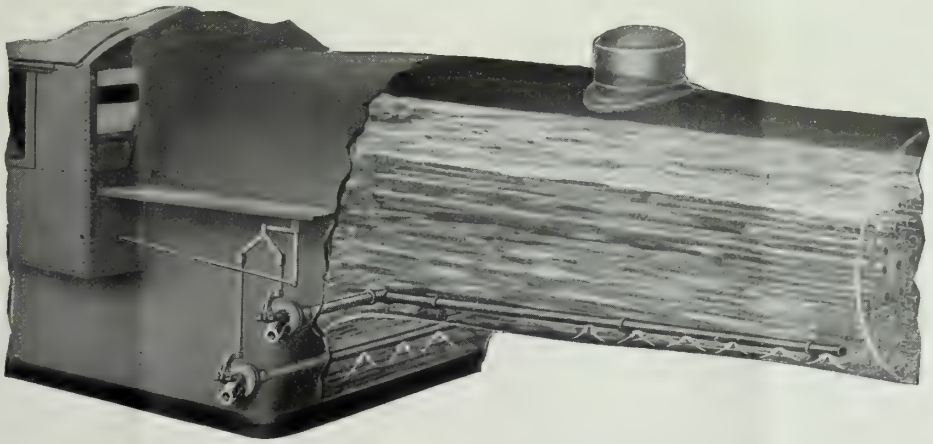
Narrow Clearance Type



Bird Type

The Narrow Clearance type for application to extremely wide fireboxes for use with or without the Sludge Remover.—The Bird type to be screwed into the boiler.—The Northwestern and Milwaukee type (flanged)—The Wilson type designed especially to be used with THE B-A CO. SLUDGE REMOVER.

Each valve has only three component parts—Can be ground while the locomotive is under steam —And is kept closed by boiler pressure.

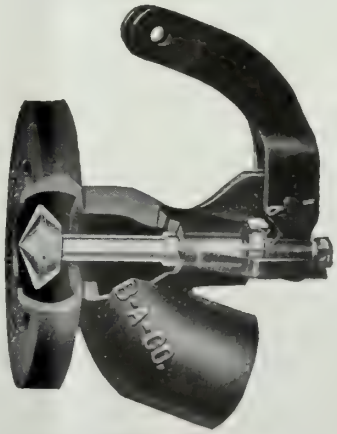


Above is—THE B-A CO. SLUDGE REMOVER—Consisting of two B-A CO. BLOW-OFF COCKS hooked up in tandem. These valves being connected to a system of slotted pipes clearing the belly of the boiler as well as the mudring, of all mud and suspended matter, at one operation.

Northwestern & Milwaukee Type

THE BIRD-ARCHER COMPANY

is engaged primarily in the manufacture and supply of boiler chemicals for water treatment—but its activities in rendering the necessary expert service in this connection, are properly extended to cover the installation and service of B-A CO. Blow-Off Cocks, and Sludge Removers, all of these items being consistently designed to obtain one end: The promotion of locomotive boiler efficiency.



Wilson Type

THE BIRD-ARCHER COMPANY

NEW YORK

PHILADELPHIA CHICAGO ST. LOUIS MONTREAL WINNIPEG

BUENOS AIRES Argentina MANILA P. I. SYDNEY Australia

Daniel Coughlin, general manager of the first district of the Rock Island, with headquarters at Des Moines, died in that city, June 26.

William J. Manley, assistant to the president of the Pittsburgh & West Virginia with headquarters at Cleveland, died at Pittsburgh, May 28.

Robert R. Hammond, former engineer maintenance of way and vice president of the Frisco and vice president of the Chicago & Eastern Illinois, died at his home at Barrington, Ill., June 27, aged 72 years.

Ernest Van Cleve Baugh, manager of the dining car and commissary department of the Baltimore & Ohio, died June 18.

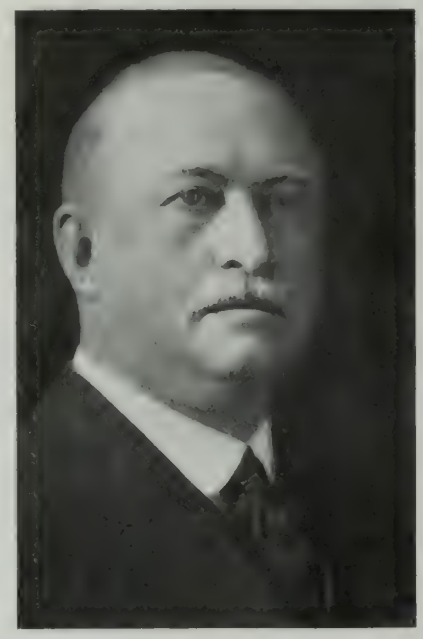
William Francis Howard, former master car builder of the Wabash, died at his home in Toledo, June 16, following an attack of bronchial pneumonia.

John Flick, assistant superintendent of the New York division of the New Haven, died at his home in New Haven, June 21.

H. L. McCutcheon, who was recently appointed division engineer on the Chesapeake & Ohio, at Hinton, W. Va., was killed near that city, June 25, when the track motor car on which he was riding was struck by a train.

Major D. B. Carson, former general manager of the Nashville, Chattanooga & St. Louis, died June 28, aged 70.

John D. Maxwell, master mechanic of the Mobile shops of the Louisville & Nashville, died at his home, May 16. Mr. Maxwell had been in the service of the L. & N. for 48 years and had been master mechanic at Mobile for 22 years.



Charles M. Levey.

Charles M. Swift, president of the Philippine Ry., with headquarters at New York, died at his home at Grosse Point, Ferrisburg, Vt., June 26.

C. M. Levey, former president of the Western Pacific and for the past two years assistant to the chairman, died in New York, June 24, following a short illness. Mr. Levey was nearly 71 years of age, and at the time of his death was completing a trip around the world.

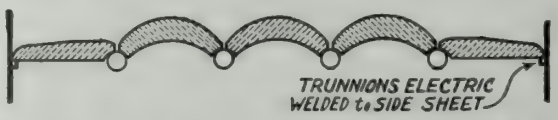
Harry D. Vought, secretary of the New York Railroad Club, and the Central Railway Club, died at his home at Montclair, N. J., June 3, aged 80. Mr. Vought was actively associated with various clubs and organizations and served for approximately 50 years as secretary and treasurer of the Central Railway Club. He was also secretary of the New York Railroad Club, having served in that capacity continuously since 1903. He was associated with the Master Boiler Makers Assn. in a similar capacity since 1907.

William Symes Andrews, Edison pioneer, died at his home in Schenectady, July 1. He was the oldest employe in the organization of the General Electric Co., which recognized his service to electric lighting as unbroken from the day he entered Edison's employ at Menlo Park in the autumn of 1879, before the General Electric Co. itself came into existence. His death was due directly to the effects of x-ray

TRUE ECONOMY

Can be Secured in Steam Locomotives

by the use of



ECONOMY BAFFLE WALLS

THEY INSURE MAXIMUM LIFE OF BRICK WITH A MINIMUM WEIGHT ON THE ARCH TUBES

THE ECONOMY METHOD of SUPPORTING SIDE BRICK on TRUNNIONS ELECTRICALLY WELDED to the SIDE SHEET ELIMINATES the liability of the side brick dropping into the fire bed and the necessity of straightening or replacing bent arch tubes.

THE ECONOMY METHOD provides radiant heat near the side sheets, causing more complete combustion in this "COLD" area. It also PREVENTS the accumulation of coke and slag in the "pockets" resulting when inclined side brick are used, thus increasing the active firebox heating surface.

ECONOMY ARCH COMPANY

1843 RAILWAY EXCHANGE BUILDING **ST. LOUIS, MISSOURI**

Distributors of Locomotive Arch Brick Manufactured by
EVANS & HOWARD, LACLEDE-CHRISTY, A. P. GREEN and NILES FIREBRICK COMPANIES

High Sustained Boiler Capacity Brings Operating Economies!

BEST operating records are made by roads that take advantage of the opportunity to secure greater power at advanced speeds.

To realize the full potential power of the locomotive, the Elesco superheater and feed water heater are essential factors.

They provide at least 40 per cent greater sustained boiler capacity.

This means maintaining limited schedules with heavier trains. It means handling more tonnage in fewer trains. It means increased track capacity from every mile of track construction.

Are you taking full advantage of these opportunities?

THE SUPERHEATER COMPANY

17 East 42nd Street
NEW YORK

ELESCO

Peoples Gas Building
CHICAGO

Canada: The Superheater Company, Limited, Montreal

Feed Water Heaters | Superheaters | Exhaust Steam Injectors

Superheated Steam Pyrometers

A-241

burns sustained through a prolonged period of investigation 35 years ago when x-rays were so new to science that their dangerous properties in case of long exposure to them were not understood.

Ambrose T. Abbott, superintendent of the Iowa division of the Rock Island with headquarters at Des Moines, died at his home in that city, June 2.

W. D. Boyce, superintendent of the Missouri River division of the Soo Line, with headquarters at Bismarck, died in that city, June 12.

Minor C. Keith, president of the International Railways of Central America, the Atlanta & St. Andrews Bay and the Guatemala Central and founder of the United Fruit Co., died of pneumonia at his home in West Islip, L. I., June 14.

Supply Trade Notes

F. A. Merrick, vice president and general manager of the **Westinghouse Electric & Mfg. Co.,** has been elected president with headquarters at Pittsburgh. In announcing the election of Mr. Merrick to the presidency of the company, A. W. Robertson, chairman, stated that the board had accepted the resignation of **E. M. Herr,** president since 1911 in order that he might go on an extended vacation and had elected him vice-chairman. **J. S. Tritle,** in charge of manufacturing operations, has been elected a vice president with headquarters at East Pittsburgh.

Edward L. Ryerson, Jr., vice president and general manager of **Joseph T. Ryerson & Sons, Inc.,** Chicago, has been elected president to succeed Joseph T. Ryerson, who remains treasurer of the company and a member of the board.

Edward C. Brown, foreign manager of the **Dearborn Chemical Company** at Buenos Aires, has been elected vice president and eastern sales manager in charge of the New York office and eastern department, succeeding **Grant W. Spear,** who is retiring. Mr. Spear will remain as a director and act in an advisory capacity.

The **Copperweld Steel Company** announces the establishment of a northeastern district to include all of the New England states and all of New York north of Westchester and Rockland counties. **George E. Bain** will be manager of the district with headquarters at 30 Church street, New York. A southeastern district comprised of Georgia, Alabama, Tennessee, Florida, Mississippi, and part of Louisiana has been established, with **P. A. Terrell** as district manager, with headquarters in the American Traders Bank Bldg., Birmingham.

H. B. Miller, former manager of the branch office of the **Truscon Steel Co.,** at Pittsburgh, has been elected vice president and general manager of the Pacific coast plant. Mr. Miller is succeeded by **W. H. Kelly** of the Chicago office.

Eugene Brandeis, secretary and treasurer of the **Lundie Engineering Corpn.,** has been appointed vice president with headquarters in New York as before. Mr. Brandeis has been with the corporation since its formation.

The Fafnir Bearing Co., of New Britain, Conn., announces the purchase of the **Railway Motors Corpn.,** of De Pere, Wis., manufacturers of roller bearings for journal applications. Maurice Stanley, president of the Fafnir company says this amalgamation rounds out Faf-

JORDAN SPREADER
"Does the Work of an Army of Men"
SNOW PLOW ★ ICE CUTTER ★ DITCHER
UNIVERSALLY STANDARD
O.F. JORDAN COMPANY
WALTER J. RILEY, PRESIDENT
EAST CHICAGO, INDIANA

JORDAN
SPREADER - DITCHER

Indispensable in mines, on railways, public works, industrial plants, etc.

Built in Standard and Narrow Gauge Sizes

The AMERICAN AUTOMATIC CONNECTOR

Is the only practical automatic hose coupler in service today.

We have not spared time or expense in the development of our connector and we will continue this development work.

When a better automatic connector is built we will build it.

THE CONSOLIDATED CONNECTOR CORPORATION
118 Noble Court • Cleveland • Ohio

nir's line of ball bearings and makes it possible to extend the use of anti-friction bearings to railroad coaches, Pullmans and freight cars. The Fafnir Bearing Company will manufacture the Melcher box as the Fafnir-Melcher Roller Journal-Bearing. For the present the manufacture will be conducted at the Railway Motors Coporation's plant in De Pere, but production ultimately will be concentrated in New Britain. **L. W. Melcher,** designer of the bearing, will continue in charge of sales and service, with headquarters in Chicago.

P. S. Nash, service engineer for the **Union Asbestos & Rubber Co.,** with headquarters at Salt Lake City, has been appointed western representative, with headquarters at San Francisco.

Charles B. Royal, formerly Chicago district manager of the **Galena Signal Oil Co.,** is now associated with the **Standard Oil Co., of Indiana** in the railway sales division.

A recent reorganization of the sales organization of the **Johns-Manville Corpn.,** New York, has enlarged the activities of the general railroad and government department to include the aviation industry. This branch of the corporation's activities will be known as the transportation and government department, intended ultimately to cover all forms of transportation. **George A. Nicol, Jr.,** vice president, will be in charge of the department.

McLeod Thomson, for many years district sales agent of the **Rail Joint Co.,** with headquarters at Philadelphia, has resigned. **Milton Markley,** who has been associated with Mr. Thomson, will represent the Rail Joint Co. in Philadelphia.

J. E. Forsyth, has been elected president of the **Forsyth Draft Gear Corpn.** to succeed **M. K. Northam,** resigned.

C. E. Postlethwaite, general sales manager of the **Pressed Steel Car Co.,** has been appointed assistant vice president with headquarters at New York. **F. O. Schramm,** assistant general sales manager, has been appointed general sales manager, eastern district, with headquarters at New York. Mr. Schramm also retains the title of assistant secretary.

Reorganization of the railway engineering department of the **General Electric Co.** and its future designation as the transportation engineering department, has been announced. **H. L. Andrews** is named engineer of the department; **W. B. Potter** is appointed consulting engineer with **A. H. Armstrong** and **W. J. Davis, Jr.,** as associates and consulting engineers. Included in this department will be the railway equipment, the air brake equipment and the industrial locomotive engineering departments at the Erie works, and the automotive engineering department at the Lynn, Mass., River works.

The Austin Co., Cleveland, has organized the **Austin Co. of Texas,** to handle engineering projects in the southwest. The territory of the new company includes Texas, New Mexico, Oklahoma, southern Arkansas and western Louisiana.

S. Howard Eisenberg has been appointed district representative for Colorado, Wyoming and New Mexico for the **Foote Brothers Gear & Machine Co.,** with headquarters at 2812 Ash street, Denver. A western sales office has been established at 1855 Industrial street, Los Angeles.

George L. Cotter, assistant to general engineer of the **Westinghouse Air Brake Co.,** has been appointed district engineer for the Pittsburgh district, with headquarters at Wilmerding.

J. A. Amos has been elected vice president in charge of sales and service of the **Pyle-National Co.,** Chicago. **George E. Hass** has been appointed assistant to Mr. Amos.

The Louisville Frog, Switch & Signal Co., recently issued a bulletin describing the model A safe lock switch machine, which enables one to quickly and safely operate single switches, crossover

STREAM OF GOLD

Sixty years ago the last and gold spike was driven to complete the construction of the Central Pacific's Overland Route. The event marked the birth of a new land, for as truly as the hammer tapped the gold, it made possible a living stream of that metal, flowing, working and building the Pacific Coast.

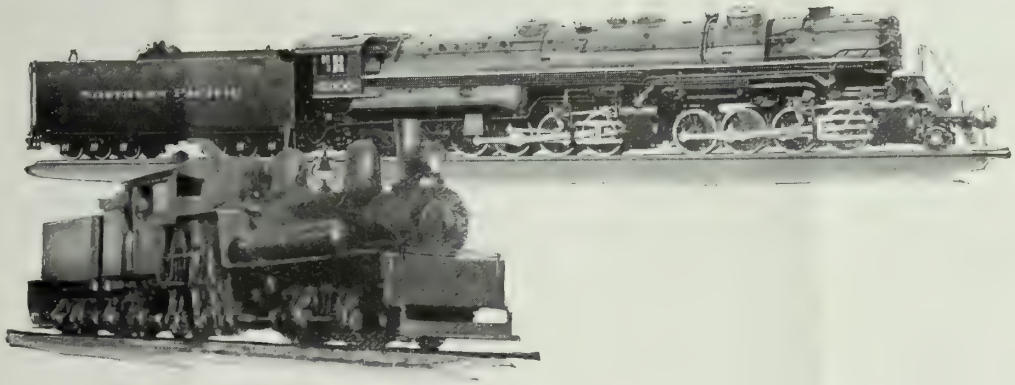
And as the Central Pacific, parent company of Southern Pacific, builded then to carry tea to the east, so now does the Southern Pacific operate its 17,000 miles of line to give the growing Pacific Coast ever increasing and always improving communication with all the rest of the United States. For the Southern Pacific the last spike will never be driven.

The Central Pacific, from the ground breaking at Sacramento, to the driving of the last spike, cost approximately $61,000,000. The Southern Pacific in the last fifteen years, has spent $88,000,000 in new construction to serve the people of the West.

Sixty years ago, a new era began. Today the opportunity to serve is recognized by the Southern Pacific as being greater than ever before, and with the years, this company hopes to fulfill that obligation as it has in the past.

SOUTHERN PACIFIC

The Two Extremes In Locomotive Size



Both Stoker Fired

ABOVE is an illustration of the new Northern Pacific Yellowstone Type Locomotive, the largest locomotive in the world. It is fired by a Modified Type B Standard Stoker.

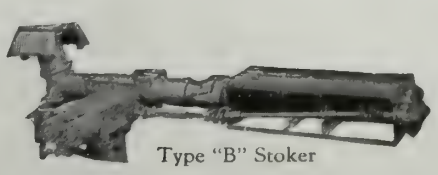
The engine has a grate area of 183 square feet, and is, of course, beyond the limits of hand firing.

Below is shown a Shay locomotive with a grate area of 21 square feet. It is fired by a Type B-K Standard Stoker, and is, no doubt, the smallest locomotive to be stoker equipped.

Mechanical Firing made the first engine possible, and according to records furnished us, made the second more efficient and economical.

THE STANDARD STOKER COMPANY, INC.

NEW YORK ERIE CHICAGO



Type "B" Stoker

switches, single or double slip switches, single switches and derails and standard facing point locks in connection with any of the above arrangements. The machine also adds to the safety of operation and, when applied to a crossover, one operation of the lever unlocks, throws and re-locks both switches, thus insuring safe and expeditious handling of crossover movements. The bulletin will be sent on request.

The American Car & Fdy. Co. has appointed **Douglas W. Dodge** its San Francisco representative. Mr. Dodge's office is in the Rialto Bldg.

The Superheater Co., 17 East 42nd St., New York, has just issued three interesting new booklets, copies of which will be supplied to railroad men upon request. The first of these, "1929 Locomotive Progress," follows the same general lines as the two previous editions. It illustrates examples of representative modern locomotives which give a fair cross-section of American motive power of today together with general dimensions and brief facts concerning the design. The booklet, "A Short Story of the Locomotive Superheater," gives a brief history of the development of the application of superheated steam to locomotives from the earliest experiments to present day practice with special reference to the history of the Elesco superheater on American roads. This is followed by a statement of how it improves locomotive operation, brief descriptions of Elesco type A and type E superheaters and a statement regarding the general care of a superheater. The third booklet is the fifth edition of "Feed Water Heater Instruction Book," which gives full instructions on the operation and maintenance of Elesco feed water heaters.

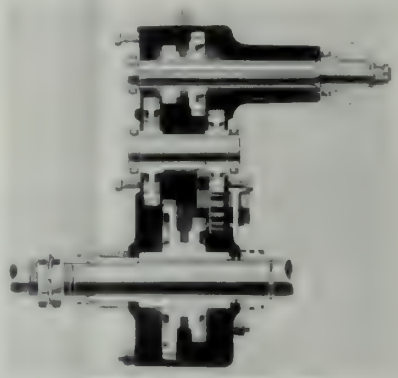
J. E. Buckingham, formerly district manager of the railroad division of the **Worthington Pump & Machinery Corpn.,** with headquarters at St. Louis, has been appointed acting manager of that division with headquarters at Harrison, N. J. Mr. Buckingham will succeed **D. R. Coleman** who has been granted a six month leave of absence.

The Binks Mfg. Co., 3114 Carroll ave., Chicago, manufacturers of all types of spray painting equipment, has just issued a new railroad catalog. It contains full data and photographs showing the uses and methods of operating all railroad spray painting equipment. Copies will be supplied free upon request.

Fairmont Reversible Transmission

Six years of satisfactory history back of the Fairmont two-speed gear, and the steadily increasing popularity of the Fairmont motor car which is equipped with that gear, has led Fairmont Railway Motors, Inc., to bring out a more advanced type of gear transmission in which either of the two speeds are reversible with a shift lever.

As shown in the sectional view, only five gears are used to produce two speeds in two directions. Shifting the upper spool gear changes speed, and the car may be reversed in either speed by



Fairmont Reversible 2-Speed Transmission.

shifting the lower spool gear. All gears are hardened cut steel and run on ball or roller bearings. The splined shaft and splined axle sleeve are hardened. The gear case is aluminum with Ringseald piston ring packing on all shafts, which makes the case oil tight and grit proof. All wearing parts run in an oil bath.

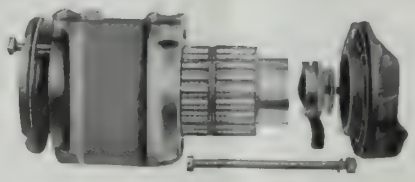
SPECIALISTS IN FORGED

Center Plates
Draw Bar Yokes
Knuckle Pins
Air Brake Pins
Brake Jaws
Journal Box Wedges
and
Miscellaneous Forgings

Send us your specifications

Steel Car Forge Company

Pittsburgh New York Chicago Baltimore



MELCHER
RAILWAY ROLLER JOURNAL BEARING
More than 450 Melcher equipped cars in Railway service.
RAILWAY MOTORS CORPORATION
DE PERE, WISCONSIN

The Chief *is still* CHIEF,

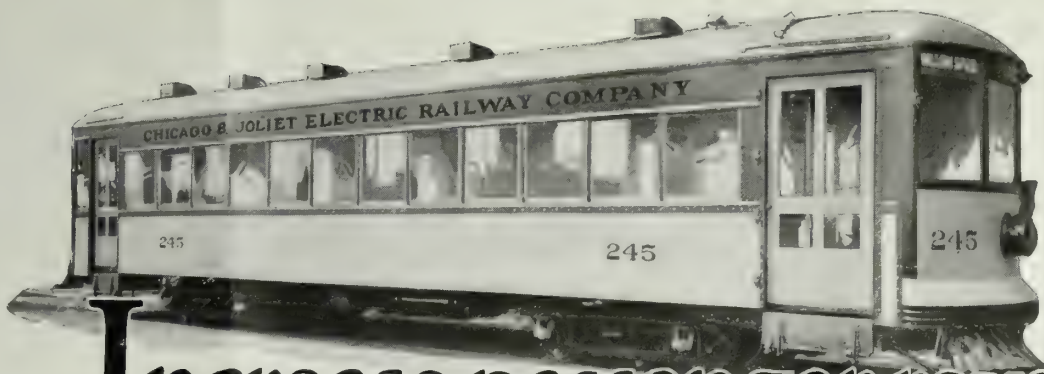
The Only *extra fast and extra fare train from Southern California*

58 hours Los Angeles to Chicago
47 hours to Kansas City

Fred Harvey Dining and Club Cars

JAS. B. DUFFY, General Passenger Agent
Los Angeles

W. J. BLACK, Passenger Traffic Manager
Chicago



Increase passenger revenue by increasing passenger *comfort*

ELECTRIC cars insulated with Balsam-Wool have an added comfort that is appreciated by passengers. Thus, logically, lines which have equipped their cars with this inexpensive advantage will draw more passenger traffic.

Balsam-Wool not only makes cars more comfortable summer and winter by keeping out heat and cold, but absorbs much of the roar and rumble of rapid transportation.

It is so much lighter than other forms of insulation that many ton miles of dead haul are saved. This means lower operating costs — larger profits. Balsam-Wool is 95% "still" air and the 1″ thickness weighs but 50 pounds per 100 square feet.

Many car builders are using Balsam-Wool regularly and lines which have learned of its value through actual operation are specifying it in more and more new equipment.

Interested railway executives may secure samples and complete information on request.

WOOD CONVERSION COMPANY

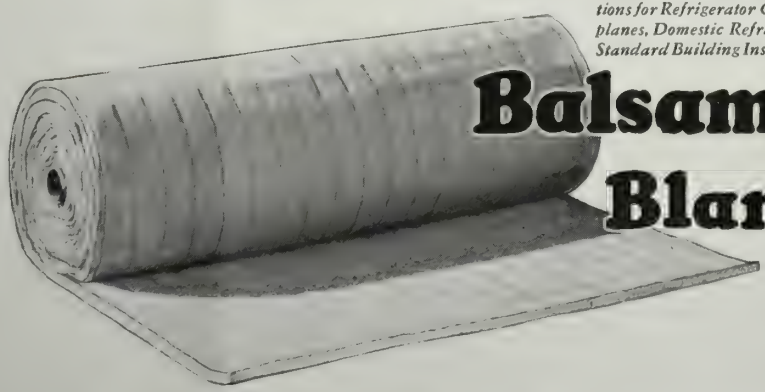
Insulation Division of Weyerhaeuser Forest Products

Mills at Cloquet, Minnesota

Railroad Sales Offices: Chicago, 360 N. Michigan Ave.

New York, 101 Park Ave.—Washington, D.C., 531 14th St., N.W.—Detroit, 3084 W. Grand Blvd.

Manufacturers of the Balsam-Wool line of Industrial Insulations for Refrigerator Cars, Passenger Cars, Motor Buses, Airplanes, Domestic Refrigerators. Also makers of Balsam-Wool Standard Building Insulation and Nu-Wood Insulating Board



Balsam-Wool Blanket

FORGET THE WEATHER!

Don't load your power for a wet day or a "bad rail".

Instead, equip your power with Graham-White Sanders and load to capacity.

GRAHAM-WHITE SANDERS

are ***automatically self-cleaning*** and ***insure*** traction under all conditions of rail or weather.

"PERFECTLY SIMPLE, SIMPLY PERFECT"

GRAHAM-WHITE SANDERS quickly return their first cost in the savings effected in sand, labor and repair parts while they increase, in a marked degree, the efficiency of a power unit.

GRAHAM-WHITE SANDER CORPORATION

ROANOKE, VIRGINIA

T-Z Railway Equipment Co.
14 E. Jackson Blvd., Chicago

Charles H. Quinn
681 Market St., San Francisco

LIFORNIA

Transportation

The National Monthly of the Transportation Industry

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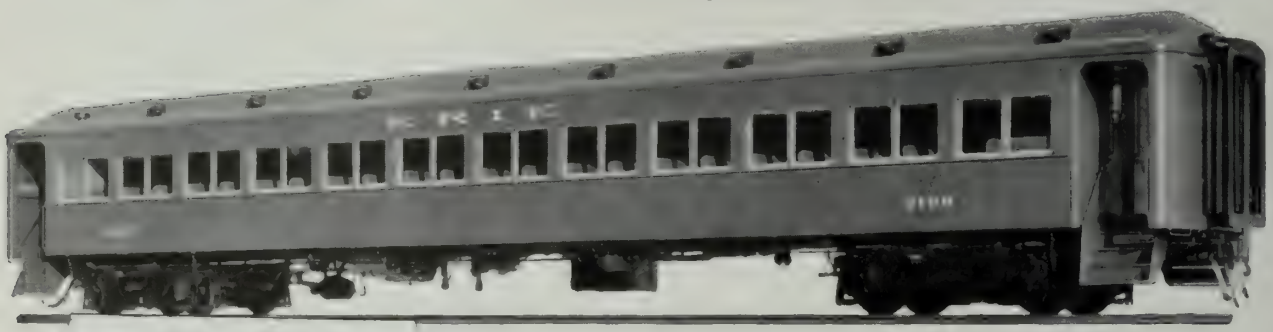
Vol. V August 1929 No. 2

Placing 30 More Hyatt Equipped Cars in Commuter Service on the Erie

AFTER using a number of Hyatt equipped self-propelled cars for several years, the Erie Railroad, in 1927, equipped 10 suburban cars with Hyatt Roller Bearing journal boxes . . . in 1928 added 25 more Hyattized cars . . . and now 30 additional cars are going into commuter service with Hyatts.

The new cars are of the "three-two" seating arrangement, and Hyatt Roller Bearing Journal boxes helped permit this heavier loading through decrease in journal friction.



Through the use of the new suburban car "three-two" seating arrangement—plus Hyatt Roller Bearings—the Erie is providing comfort for all.

Hyatt journal boxes likewise enabled the Erie—*just as they have done for so many other roads*—to adapt Hyatt boxes to the same type trucks used with their friction bearing boxes.

For Hyatt Roller Bearings and journal boxes meet every A.R.A. truck requirement.

From the standpoint of application, operation and greater riding comfort, Hyatt equipped journal boxes have so many advantages in their favor that they are fast becoming the standard anti-friction railroad bearing.

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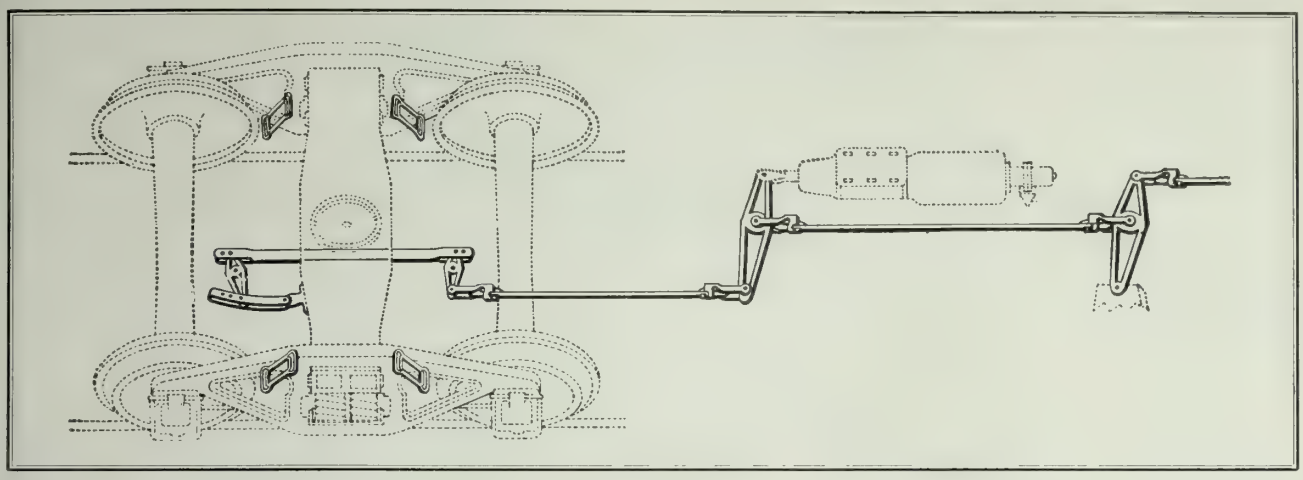

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INCREASED safety and reduced replacement costs are combined in Schaefer foundation brake gear details.

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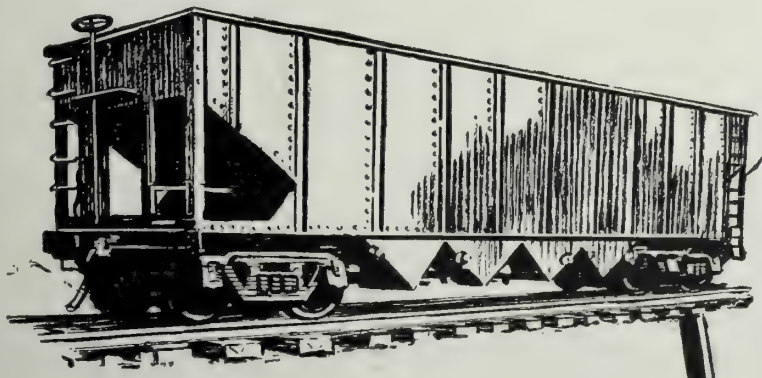
Used as a unit Schaefer foundation brake gear details safeguard safety, reduce replacement costs and reduce car weight by about 115 pounds per car.



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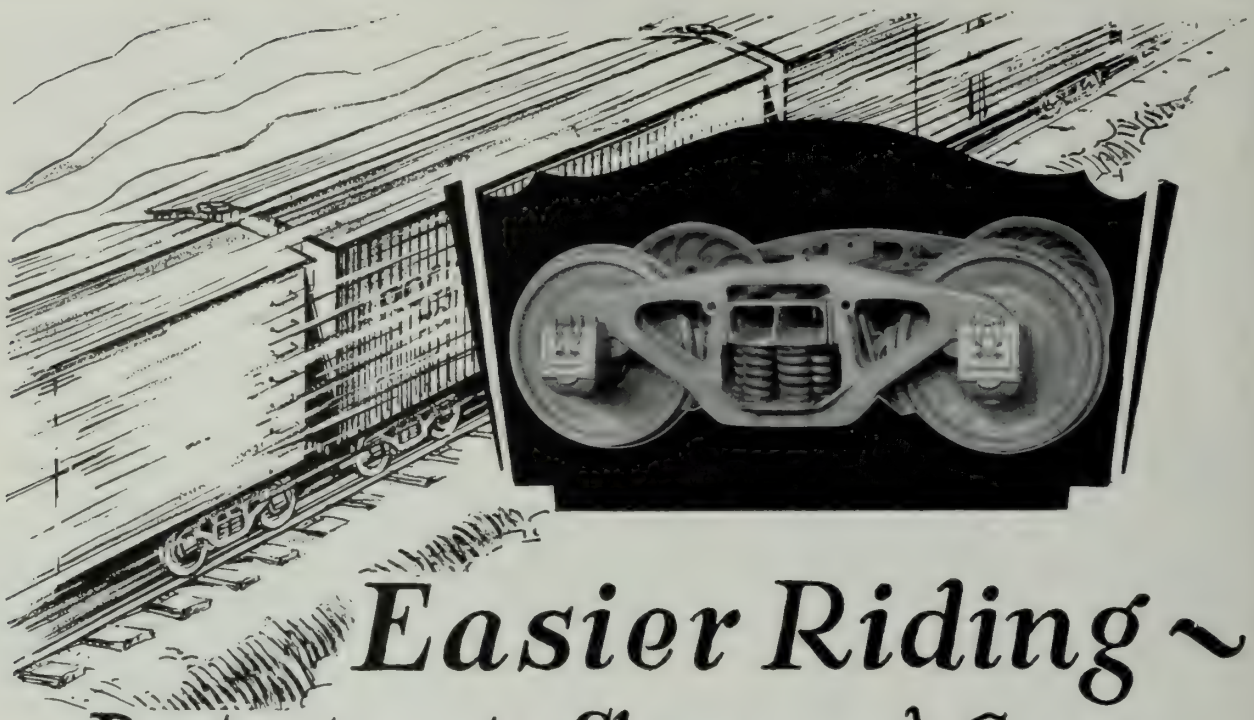

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Transportation

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The National Monthly of the Transportation Industry

AUGUST, 1929

VOLUME FIVE NUMBER TWO

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New Locomotives For Secondary Service Should Earn Twenty Per Cent

THE average engine in secondary service is 20 years old.

Compare its performance with that of an all-purpose 4-6-4 type locomotive embodying Super-Power principles and designed especially for secondary service.

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New Locomotives for secondary service will increase net earnings

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Photos by W. B. Parry, Jr., Engr. Dept.

Station at Madison, N. J. D. L. & W.

Improvements On the Delaware—Lackawan'

By Charles Dillon

When work began, a good many years ago, on the first subways in New York, it was a distracting place to visit. It continued that way, too, for many years with only brief intervals of comparative quiet. When you weren't avoiding a subway excavation you were leaping nimbly out of danger around the canyons of the Pennsylvania station workings or you heard the uproar and rumble of an army tearing down part of the city for the Grand Central Terminal.

It used to try the nerves of visitors. "I wish to Heaven they'd finish this town," said one of them, one day, as he grumpily sidestepped a load of brick on its way to the ground. "Honestly, man, every time I come here it's worse."

"Whenever this town is finished," said a philosophical traffic cop, "I'm going back to Ireland."

The copper was right. Some things are never finished — cities, churches, railroads. That is to say, when they cease to progress, to enlarge, to improve in keeping with the times, they are dead. The thought comes often to travelers in our own country, especially, perhaps, those from the West, when in the more densely populated East where changes are not so quickly noticed. One looks at a railroad back there and thinks of the years it has been in operation—years before one's home in the West was open to settlement—and the thought comes that surely *this* line must be finished. But the railroads, like cities, must go on, generations without end, tearing down, building anew, improving, keeping up with the demands of an impatient public. There is no rest.

The Lackawanna is a good example. We went over this property a few years ago and decided, to our satisfaction at least, that it was pretty well equipped to handle the great traffic volume it had for many years to come without much more disturbance. Little did we know New Jersey, it seems. We hadn't reached home before reports came of great changes, proposed or actually under way. Since then we have been watching the Lackawanna and its activities — new stations, four-tracking construction, electrification of suburban lines, improvements everywhere to keep the line up to modern demands, something not particularly easy to do in any part of the country. Going over the record of things done and the things yet to be done one wonders just precisely where the poor stockholder comes in, if he ever does, for of course, not all roads are so favorably situated as the Lackawanna.

Paterson New Station From Street Level Looking West From City. Watchung Mountain in the Background.

This road's grade crossing elimination and its new passenger station at Paterson, N. J., are particularly interesting. The northerly line of the road between Jersey City and Denville, N. J., near Dover, known as the Boonton branch, in passing through the southern edge of Paterson, lies practically in a semi-circle, as it passes around one of the Watchung Mountains on its steep northern slope at an elevation 120 feet above the Passaic River and the lower parts of the city. This circuitous route was chosen for the railroad when constructed in 1870 to avoid a tunnel 1¼ miles long. The bed of the abandoned Morris Canal parallels the railroad's location around the mountain, and is adjacent to it on the lower side.

The railroad and canal lines around the mountain have been the limit of the city's expansion southward, on account of the presence of the steeper part of the mountain slope. Only three highways from the city southward across the railroad ever have existed, and only one of these, known as Barclay street, which extends along the foot of the southerly slope of the mountain, was sufficiently free of steep grades for development as an important thoroughfare southward. Barclay street crosses the railroad at the extreme southwestern corner of the city.

The original passenger station, built in 1870, was of necessity provided at Barclay street, the only through highway, although too far removed from the city's center to attract a substantial amount of passenger traffic. A branch line two miles long, extending into the industrial section of the city, was originally provided for freight business.

After a long period of service without change, the passenger station facilities became inadequate so a new station was provided, last year, pretentious enough for a city of Paterson's size—population about 150,000. A site was chosen half a mile west of the old place, nearer the center of the city. A wide approach street from the North was constructed by the city to provide easy access to and from main eastward and westward thoroughfares.

Paterson is a great silk town. It has 842 silk plants and 81 silk and cotton dyeing establishments. More than 16,000 wage earners are employed in the manufacture of silk and 6,767 in the dyeing establishments. There are 45 other manufacturing industries in the city employing 33,341 wage earners, chief of which are the Wright Aero Corpn., manufacturers of airplane engines, and the Standard Aircraft Corpn., makers of airplane bodies, wings and parts.

The new station is opposite the center of the mountain on its northerly slope and on the easterly side of the railroad. On account of its high elevation, the station can be seen from a goodly portion of the city. With the beautiful Watchung Mountain as a background, the view of the station from the lower level is striking. Passaic County has recently taken over that part of the mountain in the vicinity of the station, to be developed as a public park, which will insure the maintenance of this unusual station background. Besides the station building, a shelter house with subway under tracks connecting the two buildings, was provided, and station platforms long enough for 12-car trains, about one-half the length of which are protected with suitable canopies.

The buildings are of brick and stone, with terra cotta embellishments and tile roofs. Spacious station grounds have been provided at the street levels, two stories below the track level. As a feature of the station layout, a wide approach stairway was built through the center of the grounds from the street, this stairway being necessary on account of the substantial rise in the ground profile between the street and the station building. Wide driveways, and a large expanse of lawns and shrubbery are features of the grounds. In connection with the station facilities there is a driveway on the shelter house side of the railroad which serves jointly as a drive to the shelter house, and to an express car track serving the city.

In connection with the improvement in the station facilities the two grade crossings in the city requiring attention were eliminated. At Barclay street crossing, a highway with heavy traffic, an overhead reinforced concrete viaduct was built, and at Mill street crossing, at the north end of the new station platforms, a reinforced concrete flat-top bridge, both of ornamental design, are features of the improvements.

The construction of the station on the site selected would have been impracticable had not the Morris Canal, near the railroad at the East been abandoned. Besides eliminating construction problems, the abandonment of the canal gave the additional width of right-of-way necessary.

The present line of railroad through Paterson consists of two main tracks. As part of the four-tracking program for the Paterson line between the two large terminal freight yards at Secaucus, N. J. (near Jersey City), and at Port Morris (near Dover), 41 miles, four main tracks eventually will be constructed. On the new station work and related improvements at Paterson, provision for the two additional tracks has been made. Of the 41 miles of line between Secaucus and Port Morris, four-track construction has been completed on 24 miles.

The Lackawanna has completed the

work of four-tracking its line between Boonton, N. J., and East Dover, a distance of about eight miles. This work is a part of the program of increasing its main track facilities on the Boonton branch, necessitated by an increasing freight and passenger business.

The Boonton branch originally was constructed in 1869 between Dover and Hoboken, the tidewater terminus of the railroad, on a roadbed somewhat shorter and with much easier grades than the old line passing through Summit. It was built as a two-track road, and for many years served its purpose of permitting the easy movement of freight with little interference due to suburban passenger business which had developed along the old line through the Oranges. It became apparent, however, shortly after the World War that the two tracks on this branch must be increased to four, and work was started on those sections where the increased trackage was most needed. With the work now completed, the Lackawanna has four tracks for about 30 miles of the 46 miles between its Hoboken yards and its Port Morris yards.

Montclair Terminal on Line Between Newark and Montclair. An Example of the Fine Stations and Grounds Provided by the Lackawanna on Its Suburban Lines.

The work between Boonton and East Dover continued the four tracks from a point just east of Boonton and carried them to the outskirts of Dover. Construction was started in May, 1927, and finally completed in August, 1928.

Through the town of Boonton the original line was crossed by Main street, a tunnel-like overhead bridge, immediately west of which was a two-track through truss bridge, over the abandoned Morris Canal. The Main street crossing was the only crossing of the railroad in Boonton, and it was necessary therefore either to provide a new permanent crossing or provide a temporary crossing while Main street bridge was being rebuilt. The railroad company agreed with the town to provide a new overcrossing with necessary approach embankments about 3,000 feet east of Main street. A concrete arch bridge spanning four tracks was constructed and put in service permitting the reconstruction work on Main street bridge to be started. This bridge is a through plate girder with cantilever sidewalks.

The three grade crossings within the limits of this work were eliminated. The one leading to Rainbow Lake was eliminated by providing an overhead concrete bridge in the cut 400 feet west of the old crossing; the one at Franklin Road, Lake Estling, was eliminated by providing an undercrossing a short distance east of the old crossing; and the one at Dickerson Road by constructing a concrete viaduct over the railroad and river in the line of the old highway. All of these structures are to provide a much wider roadway than formerly existed. They are of the usual Lackawanna ornamental concrete design.

At Denville, about midway in this work, the Lackawanna's old line which passes through Morristown and the Oranges connects with the Boonton branch. There are 76 passenger trains passing Denville every day, and to permit such trains free movement without interference by freight trains required the construction of something other than a grade crossing. Of the four tracks on the Boonton branch, the outside tracks are passenger tracks. It was decided to cross the westbound passenger track of the Boonton branch under

Track Elevation Through East Orange, N. J., at the Station. An Example of the Ornamental Elevated Structure Used by the Lackawanna on Track Elevation Improvements.

View West at Denville, N. J., D. L. & W. R.R.

the two middle or freight tracks at a point east of Denville, so that at the junction point of the two branches at Denville, both passenger tracks were on the south side where the Morristown branch connects with the Boonton branch. This leaves both freight tracks on the opposite side free of crossings at grade of the heavy suburban passenger movement.

The work also included the installation of three block color light signals, two electro-pneumatic interlocking plants at Boonton and Denville, and the reconstruction of a mechanical interlocking plant at East Dover. All tracks were constructed with 130-pound rail, screw spikes, treated ties and stone ballast. The work involved the excavating of about 94,000 cubic yards of rock and 450,000 cubic yards of earth, all of which was utilized in embankments. It also involved the construction or reconstruction of nine bridges, 19.3 miles of track, 17 high speed crossovers, and two signal towers.

Since the rebuilding of the Lackawanna in the suburban zone, begun several years ago—required for grade crossing elimination, three-tracking and betterment of station facilities—the Morristown line, which carries most of the suburban traffic to and from New York City, has been transformed into one of the finest suburban railroad lines in the country. No expense has been spared to make the service for commuters the best.

Continuing the policy of making large expenditures where substantial improvements in this service were to be had, the Lackawanna completed, last November, and placed in operation a new high-level crossing of the Hackensack River between Hoboken and Newark to reduce about 75 per cent the number of bridge openings, and increase the number of tracks on the bridge from two to three. The reduction of from 20 to 25 in the number of openings of the bridge daily to the river traffic has substantially speeded up the passenger service consisting of approximately 200 trains daily.

The new lift bridge gives 40 feet of headroom over the river. It is necessary now to open the new bridge only for the large boats for which a maximum headroom of 135 feet is provided. The time required for the maximum 95-foot lift is 1½ minutes.

The lift span of the new bridge rises between two steel towers 184 feet high, each tower being supported by two concrete piers extending to bed rock 126 feet below the bottom of the towers and 90 feet below the water level. Approximately 2,500 tons of structural steel and 50 tons of operating machinery were required for this structure. Twenty thousand cubic yards of concrete were used in the four foundation piers. This is the first three-track bridge of this type ever constructed, two-track bridges being most frequently used. The new bridge embodies all of the latest control features, making its operation almost entirely automatic.

Electric motive power for the lift span ordinarily is used, but gasoline power is available in emergencies. Two separate and independent electric power generating plants are provided on the bridge; therefore, the failure of three sources of motive power must occur before the bridge would be put out of service as far as the movement of the lift span is concerned.

To gain the additional 30 feet of elevation for the tracks on the new bridge, it was necessary to construct expensive long approaches on both sides of the river. An earth fill 1,300 feet long and a concrete viaduct 500 feet long constitute the east approach. The west approach comprises an earth embankment 4,800 feet long and a concrete viaduct 270 feet long. The bridge over the river, consisting of the lift span and five approach spans, is 680 feet long. The length of the entire elevated structure, i.e., the bridge over the river and the approaches is 1 1/10 miles. In making the approaches 750,000 cubic yards of earth for embankments and 18,000 cubic yards of concrete for viaducts and other structures were used. Two-thirds, or 500,000 cubic yards, of the earth for embankments was placed by motor trucks, and was obtained from miscellaneous excavations within a radius of ten miles of the bridge.

The Lackawanna is now planning the electrification of about 70 miles of suburban road, involving 160 miles of track, now that the grade crossing elimination program is practically completed. The Morristown line, between Hoboken and Dover, 41 miles of road, and the Montclair branch from Newark, about 5½ miles long, carry most of the commuting traffic. On these two lines alone during the last 25 years, 120 important highway grade crossings have been eliminated, of which number eight highways were occupied by street railways. On the same lines during the period mentioned two steam railroad grade crossings also were eliminated. The lines now to be electrified are the Morristown line, 41 miles; the Montclair branch, four miles; the Passaic and Delaware 22 miles, and the Ber-

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What the Row's About in Manchuria

A War-Provoking Railroad

By B. G. Mitchell

NORMALLY a railroad is built to carry passengers and freight. While it is tending to this important business it is supposed to pay all its expenses and turn over a little money to its stockholders. After it has accomplished these things it has done all that ought to be expected of it.

The Chinese Eastern Railroad in Manchuria does not get off that easily. It does in a handsome way all that a railroad should, and rewards its shareholders very liberally for acting as its owners. But in addition to this strenuous work, someone or some set of circumstances always is mixing up that railroad in politics. And it isn't just petty local politics; this railroad gets into real, international affairs. A vest pocket edition of the history of the Chinese Eastern Railroad will explain why.

For years after the Russians had founded Vladivostok in 1860 on Golden Horn Bay on the Pacific border of Siberia, they felt that the old Imperial post road across that country was inadequate as a transcontinental means of communication. They began to dream of a great railroad connecting Vladivostok with Moscow and with what was then St. Petersburg.

The dream started to come true when on May 19, 1891, the Czar's son, the late Nicholas II, raised a hammer at Vladivostok and struck the blow that began the construction of the Trans-Siberian.

One of the construction units of that road was from Lake Baikal to Streitensk near the Manchurian border. At Strietensk Manchuria humps itself up into Siberia in such a way that the railroad engineers were confronted with a big problem. They could keep on following the rivers northward and then west along the Manchurian-Siberian border to Habarovsk, and thence down the coast to Vladivostok. This route had the disadvantages of traversing a very thinly settled country, making it difficult to get supplies, and also serving very few people; there would be several very long bridges to build, the severe climate would make construction work difficult and later the operating activities would be burdensome.

Col. B. O. Johnson.

Or, if they could get permission to make a short cut across Manchuria, the engineers would avoid all these difficulties and would, in addition, save about 1300 miles of expensive construction. The political statesmen of Russia supported the idea eagerly because it meant the spreading of the imperial power of their country into Manchuria and the strengthening of that power in the Far East in general.

A commission was appointed to ask China for the concessions necessary to build that road. These negotiations were successful, and on August 27, 1896, a contract was drawn up between the Chinese government and the Russo-Chinese Bank for the construction of the Chinese Eastern Railroad. The Chinese Eastern Joint Stock Company was organized for financing the building operations.

The contract provided that after 36 years following the opening of traffic on the new road the Chinese could buy back the road and its accompanying concessions. They would pay the first cost of construction plus the cost of development during that period with interest on the whole sum. After 80 years the road automatically would revert to the Chinese without any payment whatever.

Another provision was that the president of the board of directors of the road elected by the shareholders was to be appointed by the Chinese government. This Chinese president was to be the official representative of his government in all the affairs of the railroad. The vice president of the road was to be a Russian who also would be the general manager.

As a further concession the Chinese government ceded to the Russians for the life of the contract a strip of land 30 miles wide reaching across the entire breadth of Manchuria from east to west with the railroad as the center of the strip. On this narrow stretch of land the Russians built towns, developed factories, established trading centers, organized schools.

When the railroad and these other developments were completed the Russians had a bit of their empire 30 miles wide extending for over 900 miles across the north and south center of Manchuria. This naturally deposited the railroad on the threshold of international politics, and later circumstances dragged it clear inside.

Construction on the road began in April, 1897. At that time the right of way of the proposed road extended from Manchuria City (Man-

B. G. Mitchell, author of this up-to-the-minute high light on a subject now engaging the attention of the great powers, is a world traveler of experience who, particularly, knows Russia and Manchuria. He has contributed to this magazine on several occasions

chuli) on the West to Pogranichnaya on the Suifenho River on the East. At a point about 340 miles west of Pogranichnaya the Sungari River, a tributary of the Amur, crosses the Chinese Eastern. Here the Russians decided to build their headquarters city for the railroad. The new city was established in 1896 and was named Harbin.

In the city of Harbin are situated the general offices of the Chinese Eastern Railroad, and also the big repair shops. The official residence of the Chinese president of the road is in this city.

During the first year of the construction work on the Chinese Eastern Japan was having a war with China. Japan won the war and, although it was started because Japan wanted to be supreme in Korea and Manchuria, she obtained not only this prize, but demanded and received Formosa and Liaotung Peninsula. This seemed to displease Germany, Great Britain and France. They firmly suggested to China that she could correct her error in giving in to the demands of her conqueror by giving to Germany Kiaochow, to France Kwanchow Wan, and to Great Britain Weihaiwei and an enlargement of Hong Kong. The imperialists in Russia now became offended because China in giving away pieces of her domain had overlooked their country. Russia demanded Port Arthur and the right to extend the Chinese Eastern Railroad from Harbin to that port. When all these presentations were over with, it appeared that the four great powers had a little advantage over Japan in that they had secured their slices of Chinese territory without any war!

This additional concession from China gave the new railroad an extra 620 miles of line. All this happened in March, 1898, less than a year from the beginning of construction work. Four years later the Chinese Eastern system was completed, and the railroad was formally opened to traffic June 1, 1903.

The strange part about all this situation is that when the Russians had secured the Chinese Eastern Railroad they went ahead and built the expensive section of the Trans-Siberian Railway along the northern border of Manchuria and through Habarovsk to Vladivostok.

The granting of the Port Arthur-Harbin extension of the Chinese Eastern Railroad pushed this road a little further into international affairs. Japan regarded it as an invasion of Southern Manchuria which she considered her legitimate prey. She also was afraid that it meant that Russia was looking with covetous eyes at Korea.

Sleeping Car on the De Luxe Trans-Siberian Express at Harbin.

Japan pondered over these things until she was convinced that the Russian bear was her mortal enemy and accordingly declared war on the beast. Largely because of graft, treason and inefficiency at home Russia lost this war. The price for losing was that Russia, in 1905, was compelled to make a present to Japan of Port Arthur and that part of the Chinese Eastern that runs from Port Arthur to Changchun, a distance of 470 miles. This former section of the Russian railroad is now a part of the South Manchurian Railway, which is owned by Japan.

The present status of the Chinese Eastern Railroad is that it runs from Manchuria City to Pogranichnaya (918 miles) and from Harbin to Changchun (152 miles), making a system of 1070 miles of railroad.

With the formal annexation of Korea and the extension of their trade and capital investments in Northern Manchuria, the Japanese began to see in the Chinese Eastern Railroad a visible evidence of a threat against their country to further progress in that area. However, the road went unconcernedly on bringing increased prosperity to the inhabitants of the territory fed by the railroad, and especially to the Russians.

Then came the Bolshevist revolution and the collapse of the Czarist government. At the same time China was prostrated by the most terrible civil war of her history. With both owners of the road in a helpless condition the railroad began to deteriorate rapidly, and the situation offered a splendid opportunity for someone to steal the whole system.

An international commission was organized to assume advisory management. Its responsibility was to see that the road did not fall into chaos and ruin because of the disruption of the high authority over it, and to be sure that the road was preserved intact for its rightful owners. The commission was first headed by Col. John G. Stevens and later by Col. B. O. Johnson, the newly appointed assistant to the operating vice president of the Northern Pacific at St. Paul, Minn. On this commission were representatives of China, Japan, Great Britain, France, and of one or two other powers.

The commission met as frequently as occasion demanded, but the brunt of the work and responsibility fell on Colonel Johnson. With characteristic energy and good judgment he established an office in the headquarters building of the Chinese Eastern in Harbin, and learned enough of the difficult Russian language to converse with Russians without an interpreter. Though technically occupying an advisory position, many times the virtual management of the road was in his hands. He kept American railroad office hours, more hours than the Russians worked and often extended far into the night. The Chinese Eastern increased its volume of traffic, substituted its dilapidated condition for one of up-to-date repair, and began to lay up a surplus over expenses. This was done despite the fact that its owners were too harassed by war to worry about such a trifle as a railroad. The railroad was also burdened with the unprofitable job

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Why Every Man Should Save Coal

A Thought For Future Generations

By J. B. Hill

President, N. C. & St. L. Ry.

To railroad men, no piece of machinery is comparable to a modern locomotive, particularly in action. It is a thing for which every good engineer and fireman has an affection, as a horseman for his own fine steed, or as a dog fancier for his pet or protector. Yet it is a different kind of affection. It is one which commands respect and admiration because of the danger, power, mechanical precision and great skill locked up in the complicated steam locomotive, the product of the toil of thousands of mechanical engineers, students and expert workmen, representing the accumulated experience of men in machinery for almost a hundred years. Complicated though it be, and though the laws which govern its operation are well known, yet it is more or less crude, in that it utilizes effectively but a small per cent of the energy stored in the fuel it consumes.

J. B. Hill
President, N. C. & St. L.

If, in viewing one of these modern machines, a man should say to you that it was not the product of the brains and hands of experts, but that it developed itself or merely happened, you would be justified in classifying him as a fool. Yet the simplest process in all nature is far more complicated than a steam locomotive. A tiny grain buried in the soil undergoes some unknown change and shows its stalk to the wind, the rain and the sunshine, absorbing from all of these whatever is necessary to cause it to reproduce itself many times. The entire solar system, too tremendous for man to comprehend, works with the precision of the finest watch, and with such certainty that the passing of a star or a comet a hundred years hence can be determined with accuracy. The structure of the earth itself, following an orderly process through ages, presents an arrangement and result which fascinates our imagination. These things are a million times more complicated than the steam locomotive, and did not merely happen. They are the result of laws whether you call them of God or of nature, and though but poorly comprehended, developed in some great plan and purpose for the use and needs of man.

If this be true, and it is true, then the storehouse of products provided by nature are not ours to consume or use wastefully, but are ours for our own use and as trustees for posterity. Among the things which have been so lavishly provided, and which have been so wastefully used, is coal. As much as we may talk of the development of our water power, coal supplies a little less than 70 per cent of the fuel energy used in the United States, and is the very heart of our industrial activity. It provides a certain service for human beings almost beyond measure, and but little appreciated. In a thousand ways it adds to the necessaries and luxuries of our lives, and is consumed in such tremendous quantities that, limitless as the supplies seem to be, a day must come when future generations will feel the effect of present consumption. We railroad people, therefore, choosing to believe that we are among citizens of high understanding and purpose, must practice the serious conservation of this great natural resource, not only because we recognize it is right to do so, but because we are one of the largest users of coal, and for the influence of our example on all others.

Between 1921 and 1928, the consumption per 1000 gross ton miles, in the use of fuel on American railroads was reduced about 21.4 per cent. The yearly consumption on railroads is now about 125 million tons of coal. On the unit consumption of 1921, it would be about 155 million, a saving of 30 millions a year. Should we make no further improvements in fuel conservation and our annual consumption continue about the same, the savings in 100 years in the available coal supply would equal the aggregate railroad consumption for 20 years. This is a tremendous amount. If none of you is altruistic enough to care for anyone outside of your own direct line of descent, the descendants of each of you will perhaps number 300 to 400 in 100 years. Shouldn't you save that which may be needed by your own flesh and blood?

My first observation, therefore, is that we should save coal in our railroad work because no man has a right to use wastefully the things, however lavishly provided, which belong as much to a future generation as to this one. It may have taken a million years to make a lump of coal. It can be wasted in a minute. Are we justified in dealing carelessly with a thing which has been so carefully and laboriously produced?

Secondly, we should save coal because of the pride which each of us should feel in a job well done. The tremendous transportation facilities of this country have been developed to their superior position in less than 100 years. Nothing has contributed more to the development of civilization or is now contributing more to the welfare of mankind than has that great distributing agency, steam railroad transportation. A railroad man, therefore, can feel rightly that his is a useful work; that the work of his brain and his hand devoted to the task of distribution is just as essential in this complex civilization as the production of food itself from the soil. No man can do the best in his class

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An address delivered before the International Railway Fuel Association convention in Chicago.

if, in his daily tasks, he has not eliminated all possible waste. Whatever may be a man's position affecting the use of fuel, he can not say he has met its full requirements unless he has helped to convert the potential heat units in every piece of coal into the greatest possible amount of transportation.

The work of saving coal should be actively continued, not only because waste should be eliminated, every man doing his best to get the maximum energy from every piece of coal, but because there is hardly a phase of railroad operation not directly or indirectly favorably affected by an effort to save fuel. Consequently, the pursuit of the fuel conservation work to its varied and ultimate end almost certainly will improve every activity in the production of transportation service. A proper organization pursuing the subject relentlessly every day will fix and quicken the responsibility of everybody involved. The purchasing agent, or whoever makes the contract for coal, will want to know with more certainty whether he can buy less ash and more heat units, whether the coal is properly cleaned and prepared, that the proper grade and size are being placed at the proper places on the system where it will produce the greatest work with the least waste. The equipment purchasers will be keener to know that all new power is the most highly efficient, and that as rapidly as possible old power will be improved. The mechanical men, from the superintendent of machinery down through the helpers and apprentices, will be more alert as to the condition of power. Engineers and firemen will strive for the best operation of the locomotive. Dispatchers will be keener on meeting points, and maintenance of way men will help them in keeping heavy trains moving with the fewest possible stops. Dead time and standby losses will be reduced. Switch movements will be reduced. Tons per train and tons per train hour will be increased. Practically every phase of transportation service wlil be quickened by the best possible use of fuel. Just as a man's physical energy responds to the proper utilization of food, in like manner do transportation practices respond to the effective use of coal.

False Confidence

Our national prosperity is in danger from overconfidence in the financial future of the railways. This false sense of security pervades our industrial, commercial and financial associations. Seeing service on a new high plane, they seem to imagine that this can be maintained indefinitely on the current annual average input of new capital. Observing three-quarters of a billion invested annually on the good faith of the government, they apparently have forgotten that the promise in the Transportation Act is null and void unless it is redeemed. Business men know that the country requires railways equal at all times to increased traffic demand. They know that the shippers' hope as to rates lies in the progressive installation of improvements for operating economy. They live as if they believed that the development of such carriers and of such progress is automatic under the Transportation Act. The fact is that railway income persists below the lawful level. The Interstate Commerce Commission declared its aim to be 5¾ per cent on the property value. Eight years have passed. In none has income reached that percentage upon the property investment. For the whole period the deficiency, estimating the balance of 1928, is but a trifle under three billions. We call upon shippers and travelers to revive the spirit of enlightened selfishness and foresighted cooperation. We urge business bodies to survey the situation anew and to authorize activity for promotion of the common defense against railway unpreparedness and the common cause of modernization for railway economy. For such a remobilization of business men the Railway Business Association pledges unremitting endeavor.—*Railway Business Association.*

Pilots of the Skies

For I dipt into the future, far as human eye could see,
Saw the vision of the world, and all the wonders that would be;
Saw the heavens fill with commerce, argosies of magic sails,
Pilots of the purple twilight, dropping down with costly bales.

—Tennyson (1842)

200 Years of Loyalty

Four veteran employes of the Lackawanna Railroad whose aggregate service totalled 205 years and one month have been honorably relieved from active service and pensioned in accordance with the company's regulations. Engineer Frederick W. Wilkie of Binghamton, N. Y., began as an engine wiper at Utica, N. Y., in 1876, was promoted to engineer in 1882, and held that position until retirement with the exception of a few months during which he served as inspector of engines. Engineer Wilkie long has had two great hobbies—his family and home and his engine. The 987 was his engine. Together they made innumerable trips between Binghamton and Utica (95 miles). They understood each other perfectly. The 987 is now manned by other hands, but Engineer Wilkie is too busy to mourn that fact. He has dug up a hitherto somewhat suppressed hobby—pen and ink drawing, joined the Binghamton Art Society and is a regular and enthusiastic attendant of the classes, despite his 70 years.

Trainman John J. Ruane of Scranton, Pa., began work as a coal picker in the coal mining department of the railroad in 1866, and achieved the ambition of his life to become a railroad man when he was made a freight trainman in 1885. He remained a trainman through choice and declined a conductorship, serving his one employer for 61 years and eight months, and never had to be disciplined.

Engineer John F. Lonergan of Ithaca, N. Y., began as a fireman at Elmira, N. Y., in 1884, became an engineer in 1888, and has been right there for 44 consecutive years. His record never had a demerit mark placed against it.

Captain William Frost served the Hoboken Ferry Company and its successor, the Lackawanna Railroad, continuously for 46 years and eight months. Captain Frost spent 41 years in pilot houses of ferry boats and holds what is believed to be the world's record of having crossed the Hudson River 465,536 times, traveling a distance equivalent to 14 times around the world on the Hudson River, during which time he lost but six weeks from active service on account of illness and that all within the last two years. Captain Frost is an enthusiastic pedestrian. Walking is his favorite recreation and hobby. He never rides if time permits of walking to his usual destinations. Now that he has ample time to indulge in his hobby to his heart's content, his friends expect him to go after another record and become the champion walker of New Jersey.

It is costly wisdom that is bought by experience.—*Roger Ascham.*

The Future of the Railroads

A Winning Essay

By E. Fred Koller

Augustana College, Sioux Falls, S. D.

In the slow process of civilization we see man struggling to overcome the limitations of time and space. Transportation has gradually developed from its primitive origins until today it exists as the fundamental industry of a great empire such as America. In the modern age railroads have become the symbol of efficient transportation and have made a significant contribution to the growth of our national progress and prosperity. The railroads have bound a nation of 120 million souls into an indissoluble economic unit, the welfare of which is vitally concerned with the problems of transportation. Due to this close inter-relation of our transportation system with the life of the nation, it is evident that a view into the future of the railroads is a matter of profound interest to those who are concerned about the development of our country.

To meet the challenges of a new age the railroads, in cooperation with the public, must continue their efforts to produce cheaper and quicker transportation. Into this struggle for economy of time and wealth our railroads must hurl new financial power. As with all business on a large scale, the railroads must have sufficient facilities of capital; and upon this problem the immediate future of this great industry depends. Railway earnings must be large enough to support the existing investment and to provide the capital necessary for the expansion and improvement required in the interests of public service.

How to attract the additional capital which the industry needs for its future development presents many interesting possibilities. To increase rates seems to be one method of solution, but this would heap new difficulties upon the railroads. Competition from other transportation units, which have had such a phenomenal growth in recent decades, would be increased. Furthermore, increased rates would work contrary to public interest and desire.

The alternate and most effective method of solution lies in a program to bring about greater economy in operating expenses. To obtain material economy will require centralized effort in a national program of cooperation sponsored by all systems.

To reduce operating costs involves numerous technical engineering and industrial problems which, because of the saving in research and capital, can best be solved by joint action. Rich rewards for cooperative action may be obtained by creating joint terminal facilities which will expedite the movement of passenger and freight traffic, with a resultant reduction in operating expenses. Other economies may be brought about by more complete standardization in shop practice, in traffic regulation, in construction, inspection, repair of equipment, and in the application of fuel-saving devices. Electrification offers many possibilities of increased efficiency. New models of locomotives and the use of special container cars will speed up rail traffic and make possible more ton-miles per unit of capital. The railway ideal of the future will be to build lines so that every unnecessary mile and grade may be eliminated. The great Cascade Tunnel which has just been completed in the Pacific Northwest is an example of what may be done to reduce the expenses by eliminating grades.

The human problem of the railway future can be most successfully met by continued development of the proprietorship spirit among employes. The employe who possesses a stock interest or a position of trust in the company will feel himself an integral part of its organization, and will cooperate to increase the success of the system which he serves.

One of the most significant steps in the railway future will be to devise a plan whereby an effective coordination may be worked out among the different methods of transportation. It is an undeniable fact that highway and waterway transportation is increasing. In some instances it may be well for the railroads to absorb these competitors. This policy should be continued, however, only to that point where highway or waterway traffic is a necessity. Other methods of transportation should be used only to supplement and not to supplant the railroads.

At this point the public assumes a great share of the responsibility for existing conditions. Canals are built, rivers are improved, and highways are constructed at public expense, and common carriers are operated over them without being taxed to the extent that railway property is. In view of the subsidies which these other methods of transportation must have from public funds, they cannot be considered economic successes until all their costs are determined and acknowledged. If the government would assign the same support in the future to the reduction of taxation of railways properties, the railroads themselves could do a great deal toward giving the public improved service at minimum rates. One of the soundest methods of reducing rates would be to reduce the governmental expenses which are now met by railway taxes.

It is evident that the future of the railroads depends upon constructive, informed public leadership and cooperation. The public, which is the

buyer of railway service and which is also instrumental in transportation regulation, is the arbiter of the destiny of the Servants of the Rail. If the economic principle of the survival of the fittest is to govern the future of transportation, the public must seek to form a national transportation policy and assign to each unit of transportation its proper sphere of service.

The public must be led to recognize that railroads strengthened by public patronage can best serve the public interest and create still greater economies. Through public support the railroads can obtain, by means of increased earnings, the capital they must have to conduct their business on sound economic principles; and the public in return will gain the efficient services of a great public utility at a nominal price. The railroads constitute a legitimate large-scale business, the future of which is at the mercy of the sensible leadership and cooperation of the public.

E. Fred Koller, a student of Augustana College, Sioux Falls, S. D., was the winner of the grand prize of $100 in the Illinois Central System's essay contest on "The Future of the Railroads," according to announcement by President L. A. Downs. Mr. Koller also received an award of $25 for the best essay submitted from his institution, as did 44 other students of colleges and universities on the Illinois Central System. There were 309 essays submitted.

The judges were G. J. Bunting and F. L. Thompson, vice presidents, and R. V. Fletcher, general counsel, Illinois Central System, Chicago.

Reviving Old Color Schemes

By James W. Booth

The old iron horse has been putting on a lot of dog lately—if this isn't mixing the zoo too badly—dolling up and bedecking itself in a lot of bright finery, reminiscent of the good old days when a locomotive was a thing of brilliance.

There is a good bit of psychology in this change from the drab, colorless type of train. It is good for business. The increased patronage of some of the famous trains, which in the last few years have gone in for color, proves the contention. The public has shown an increasing inclination to ride upon these bright and gay trains and the men who work on them have a new pride in their jobs. It is just like a smart new chain store, which brightens its front and gets the business from its rather dull and shabby competitors.

Back in the middle of the last century there was nothing so gay and colorful as the railroad passenger locomotive. Reds, blues and greens yellows, purples, magentas, all the rest of them, went sloshing on those old time iron horses. And then the change set in; slowly at first, but in the end black became the dominant note.

The cars changed more slowly. The New York Central & Hudson River went from a yellow color of jaundiced hue into a very beautiful red before it finally succumbed to the highly standardized Pullman green. But in time all, with the exception of the Pennsylvania, adopted the conservative green. The Fast Mail of the Central and the Lake Shore, whose cars were all painted a creamy white; the White Ghost of the New Haven, and the B & O's famous Royal Blue Limited, with the Maryland crest, passed into history.

The Pennsylvania has always resisted the urge to come to the present-day standard of dark green trains. It looks upon its red cars as one of the distinctive features of its service, although back in the days of the Chicago World's Fair it operated one of the handsomest trains the country has ever seen, the Pennsylvania Limited, resplendent in live green and a delicate cream. The same color combination was also used for a few years on the Pennsy's Congressional Limited, but in the end these two trains assumed the standard red livery of their fellows.

Now, however, a dash of color is the thing once more.

Some will tell you that the automobile is responsible for the return to a color sense. The deadly standardized dark green for passenger cars and black for locomotives had all but completely enveloped it. Railroad men saw there must be something in the color idea. People, they reasoned, could not be swinging in droves from dull black automobiles to motor cars in every combination of gay hues—combinations carefully studied by highly paid color experts—unless there was something to it.

Henry Ford took the locomotives of his D. T. & I. Railroad, none of them new, and by a liberal use of varnish and paint and gleaming nickels made them object lessons in cleanliness and efficiency. The Southern Railway did much more. The chief passenger pullers of that system were painted a brilliant and lasting green.

The Baltimore & Ohio followed, a bit more conservatively, perhaps, but nevertheless, the color idea had struck Daniel Willard's fancy. The new locomotives of its "President" type were dressed in a Pullman green with an abundance of red and gold striping.

About the same time the Chicago, Great Western began using Pullman green and striping on certain favored engines. It did more. It took a swift local passenger express, running daily between Rochester and the Twin Cities, and painted it from engine pilot to observation platform in the gayest and most beautiful red and gold that could be found. At the same time the Wabash, and the Chicago & Alton began reviving before-the-war color schemes on their principal trains between Chicago and St. Louis, in one case a resplendent dark blue and gold and in the other a handsome combination of reds and browns.

Swiftly the movement has grown. The Boston & Maine has taken the two fine locomotives that pull the Minute Man Express between Boston and Troy and has given *carte blanche* to an artist not too troubled with conservative tendencies.

Up in Canada the Canadian National has dressed up one of the biggest of its "Confederation" type of locomotives in gay greens and gold, not the green of the rather sedate Pullman shade.

The Central Railroad of New Jersey capped the climax early this spring by putting into service its Blue Comet, running twice daily between New York and Atlantic City at high speed. The Blue Comet is Jersey cream and deep blue from end to end. Its locomotive, mechanically a revelation to the engine builder's art, shines in its deep blue and gold. All of its working parts are in chrome nickel, like a beautiful modern motor car.

The Blue Comet's patronage has proved that people do warm to this sort of thing. It has many other luxury items, reserved, individual day-coach seats, a handsome dining car, where the table linen and the uniforms of the waiters follow the prevailing blue-and-cream scheme of the outside of the train; gorgeous retiring rooms for women and children, gay in chintz and supplied with wicker chairs and full length pier glasses.

All this "dolling up" makes it appear as if the old iron horse once more has come into his own.

First, Let's Have the Seadrome

A New International Problem Considered

By Anthony Wayne

APPARENTLY the diplomats of the world are to have their hardest problem to solve as a result of man's determination to annihilate distance and obtain speed in travel.

E. R. Armstrong has asked for government aid in securing technical information that will enable him to place the first of his series of great ocean landing fields in the Atlantic Ocean. The engineering work already has been done in the planning of these great floating islands. Exhaustive tests have been concluded. The final plans have been drawn. All necessary money for the building and operation is assured. Now all that is needed is the help and advice that will indicate the best spot to moor these strange devices. And since official aid has been asked for, Uncle Sam is figuratively scratching his head, and his diplomatic chiefs are not so figuratively scratching theirs trying to decide as to *how* an ocean landing field should be classified.

It seems that Mr. Armstrong, an engineer with aviation experience, and internationally known, has provided the world with a diplomatic problem that will be good for a score of years to come. Whether an ocean landing field, or a "seadrome" as the inventor has named it, is fish, flesh or fowl, belonging to the earth, air or water, will be settled only after the holding of national and international parleys and conferences, possibly accompanied with wars and rumors of wars. Radio had its early problems, some of which are not yet decided, but a seadrome, being something more tangible than ether waves, is not to be compared with it for giving rise to intricate and complex world questions.

A seadrome, says its inventor, is an airplane landing field moored in the ocean by various devices that will hold it stationary and steady in any kind of weather. The first one is to be placed on the airline between the eastern cities of America and Bermuda, about 350 miles out in the Atlantic. It will provide an exchange station for passenger traffic, for refueling of planes, and later for the hop-off to Europe as well as West Indian islands.

—Wide World Photo

Mrs. Lindbergh, Mary Pickford and Colonel Lindbergh at Christening of "City of Los Angeles," First T. A. T. Plane Leaving the Coast for the East in the New Air-Rail Service, July 8.

The Langley, the name chosen for the first seadrome, will be 1200 feet long, 200 feet wide at the ends, will rise 80 to 100 feet above the water and will have a draft of 150 feet, a displacement of 30,000 tons and will cost approximately $1,500,000.

By means of such a craft it will be possible, Mr. Armstrong explained to Secretary of the Navy Adams, to cut the maximum flying range of airplanes between the United States and Bermuda to about 200 miles, and when the seadromes are extended across the ocean in a series, the airplane will make the trip by fast and easy hops from one to the other similar to the methods found so successful in our development of the airmail service.

Now the United States navy and the gentlemen of the state department are not certain as to the exact status of the seadrome. Is the seadrome a vessel and subject to the laws governing ships in ocean travel or is the seadrome an island? Apparently neither answer is wholly right.

Judging by all the rules that have served to govern sea matters since men went to sea, such an ocean landing field cannot be called a vessel. According to the bureau of navigation of the department of commerce, since the seadrome is not used as a medium of transportation for passengers or freight they deny its right to be called a vessel. The fact that it will be used for a landing spot for both passengers and freight is, ac-

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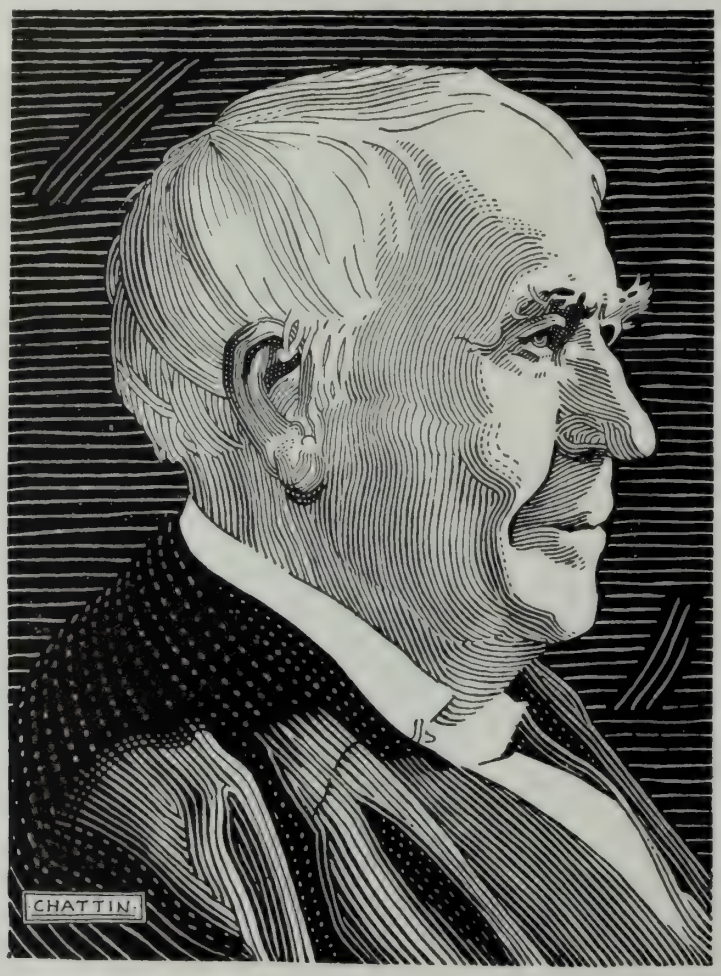
Entitled "*Edison and His Stora*



THOMAS A. EDISON, though perhaps best known as the inventor of the electric light, is the inventor also of the *Steel-alkaline* storage battery.

This battery has qualities in railway car lighting that can assist any railroad to further its program of economy and improved passenger service.

Edison Batteries give Economy and Dependability
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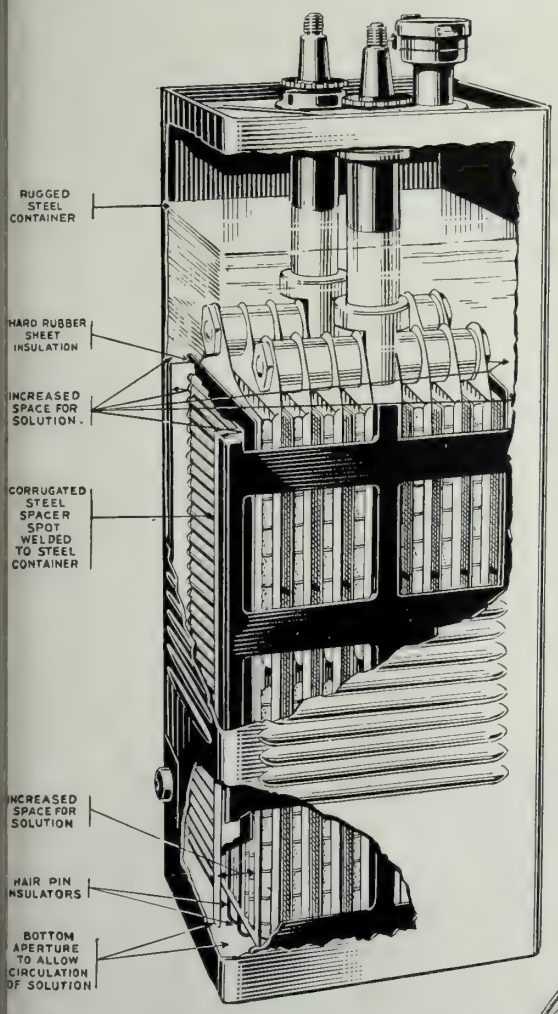


BOVE: Edison High Wide Cell, con-
aining increased solution space, used
railway car lighting.

RIGHT: Typical Edison Railway Car Lighting Battery of 24 High Wide Cells.

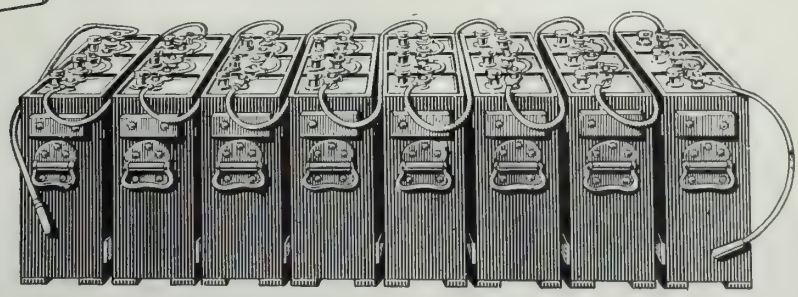
CAR LIGHTING offers attractive opportunities for further reductions in operating expenses.

Since they were first applied to car lighting service in 1911, Edison Storage Batteries have conclusively demonstrated an ability to reduce costs and to increase dependability of service *at the same time.*

The reasons are found in the characteristics of the battery which were developed by Mr. Edison during a series of experiments extending over the ten years from 1898 to 1908.

Some of these experiments are particularly interesting and instructive. They reveal, as mere description can not, the basic reasons why Edison Batteries give both economy and dependability in car lighting.

In the belief that they will be of interest to railway men, a series of advertisements presenting the more significant of Mr. Edison's experiments will be published in forthcoming issues of this paper by the Edison Storage Battery Company.



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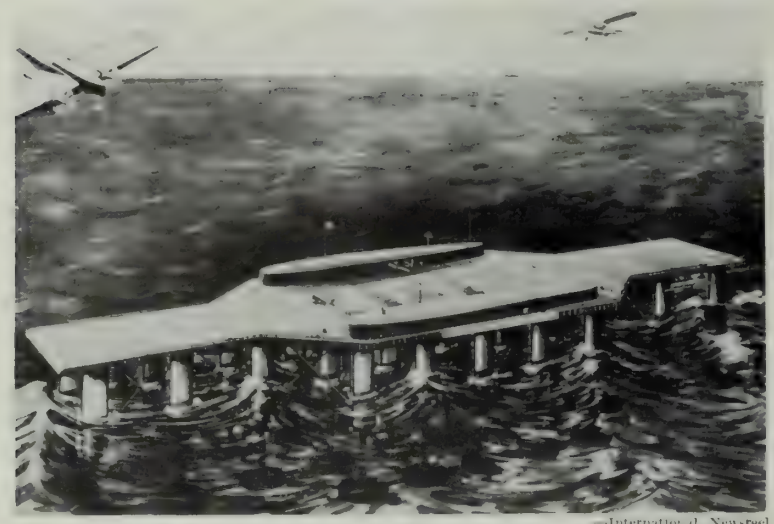


—International Newsreel

Seadrome Proposed Seriously by New York Capitalists, Presents Problems of State Not Heretofore Considered.

cording to these standards, an entirely different matter and well out side of the definition.

Seadromes not being vessels are then exempt from provisions of the navigation laws; thus they will not have to register as such or obtain clearance papers or carry the flag of the nation under which they are registered. Because this is so, their status becomes more puzzling. Without registration and with due respect for the freedom of the seas, who is to have jurisdiction over them and to whom may they turn for protection in times of difficulty?

As an example, suppose a vessel collides with one of them on the high seas, to whom can the owners of the seadromes apply for redress? If a foreign power decides that their location is undesirable from the standpoint of military defense, and threatens to sink them or blow them from the sea, to whom shall their owners turn for help?

The more the problem is considered the more involved it becomes. It is an apparently simple matter to construct floating landing fields and anchor them at sea and put in service airlines running on schedules between the United States and other countries but, apparently, there must be some basis for settling the various problems as they are certain to arise.

Since the seadrome is not a vessel, as it does not move or carry freight or passengers but is stationary, then is the seadrome an island? If the seadrome is an island then must it be regarded internationally according to the rules governing an island?

If the seadrome is operated by a British company and owned by an American company, just what is its nationality? Regardless of its ownership and its operating membership, does the seadrome itself have a nationality? If not, who ever heard of an island without nationality once it was discovered?

If a seadrome is not a vessel but a kind of island without nationality, and a company was formed thereon in a legal sense, just what would be the status of that corporation, as to responsibility?

To pursue the question logically, is it possible for the seadrome to be independent of all powers, having a status of its own, and to all intents being a state in the political sense. Thus the seadrome would have to obtain recognition of the powers and its agents would have a diplomatic status.

There are still other angles: A seadrome must keep within the law—its own law, possibly—for the convenience of its guests who would wish property and life safe at all times. Thus there is the problem of suitable police powers and such powers must proceed from some source recognized as having full and ultimate jurisdiction. If a seadrome were robbed, would it be considered piracy on the high seas or would it be considered merely as housebreaking?

If the seadrome is an island, what would Great Britain or the United States or France do if an individual thought to be a criminal fled to one? The fleeing individual would be a fugitive from justice, but does the seadrome provide immunity as long as the criminal seeks to stay there?

So far as the inventor of the seadrome idea is concerned, Mr. Armstrong indicates that he considers these great floating fields as coming under the jurisdiction of the United States. However, that does not make the problem any easier to solve, since there arises a host of military and naval questions.

With a seadrome anchored about 400 miles from the continent of Europe, will the nations there wish to have an extension of Uncle Sam's

—P&A Photo

De Luxe Airport at Chicago Costing $500,000, Privately Owned for Private Use. Dedicated June 29. In Foreground, a Club House.

The Pilots of the T. A. T. Certainly a Fine Looking Body of Men Flying the Ships in the New Air-Rail Service Co-ordinated With the Santa Fe and the Pennsylvania.

arm so close to their shores? With a suspicion of the wealth of this nation will not the seadromes be considered as possible military stations in time of war?

Should the United States undertake to convince other powers that the seadromes were never to be used in a military sense what would happen, if in a time of stress, another power should seek to sink the seadrome or to occupy it for its own purpose? Would this nation consent? The seadrome could not be considered an island in the usually accepted sense nor could it be considered continental territory, yet its value in time of war could not easily be overlooked, and no nation would be willing to see the long arm of another reaching toward it in such a fashion.

If a seadrome belonged to the United States by virtue of its ownership, could its employes be taxed as are other nationals? Or, on the other hand, could the seadrome organize, have a police force of its own, and levy taxes for upkeep in addition to rentals? As a fantastic thought but not escapable by the logic of the reasoning, could a series of seadromes, connected by modern methods of communication such as airplanes, radio, cable and telegraph, organize as a state, and ask for admittance as such within the Union? Or, could they become a nation instead?

With the seadromes having a large number of employes, what would be their status as to voting? Could the income tax laws reach them? Would it be possible for them to ballot by mail? And what stamps would their mail carry?

There seems to be one problem that is solved at the very beginning, and its inventor and his backers have not been unmindful of it, and this relates to the question of the seadrome's status under the prohibition laws of this nation. According to all the rules of international procedure the seadrome can not be made a dry area; prohibition could not be enforced legally 400 miles at sea. This fact is recognized in the plans that call for hotels, restaurants and bars for the passengers seeking various refreshments while awaiting passage on airplanes in other directions.

There seems little doubt as to seadromes' physical ability to supply the need. Dropping easily from the skies to a man-made island, level, steady and comfortable, the passenger may enjoy his meal and prepare to make another jump over a well marked, weather-known route where even a forced landing would not be serious as intermediate stations are planned for and cries of help will be answered by fast sea-sleds capable of reaching any spot within a very short time and able to make repairs.

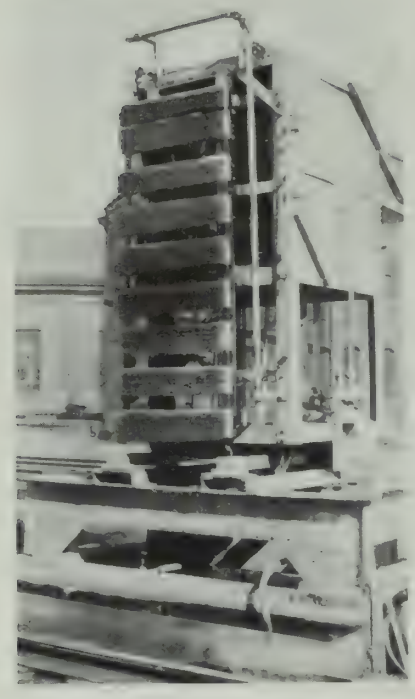
These great seadromes, according to extensive tests, will not be affected by the greatest storms or even hurricanes. Extending more than a hundred feet below the surface of the sea where giant pontoon-like devices will reach water that is forever quiet and stable, and rising nearly a hundred feet above the sea even the waves will not dash over its smooth decks. When the weather condition, as reported by the series of seadromes, is known it will be possible to hold planes from making hazardous trips even as the air mail is halted at difficult seasons.

Thus there arises a genius within man to fill a need. The need is expressed in the annihilation of space and the desire for rapid transportation. It is but partly filled by the fastest of ocean lines. The prize is a share of the wealth paid out for ocean transportation. As for international law, it probably will be well in the rear attempting to keep within hailing distance of the seadrome problem while in the meantime new uses and new placements of ocean landing fields will be carried forward, and the "freedom of the seas" will become the problem of the seas and their uses.

A Fine Looking Group

The pilots of the T.A.T., now flying in the transcontinental air-rail service between Los Angeles and New York, average 26 years of age, are five feet eleven inches tall and weigh 160 pounds. The oldest is 35, and the youngest 21, while the heavyweight of the group weighs 185 pounds and the lightest 135 pounds. The tallest is six feet one inch, and the shortest five feet four inches. The record shows that the pilots have an average of 3000 hours in the air and the mileage flown by the first 17 would amount to 200 times around the world.

Twelve of the group are married.



Car Scrubbing Machine Used by the B. & O. R.R.

A Car Washing Machine

KEEPING passenger cars of steam railroads presentable and pleasing in appearance has always been a difficult and expensive task. The manual work of cleaning them exteriorally has been tedious, and in winter, disagreeable. The general process, of course, has been to bathe and cleanse the cars by hand. A long handled brush was used and several coats of cleaning fluid applied, the cleaning fluid generally being oxalic acid dissolved in water. The oxalic acid was allowed to dry, then washed off with clear water, the long handled brush loosening the dirt. A dirty car required 11 men and took one hour to clean.

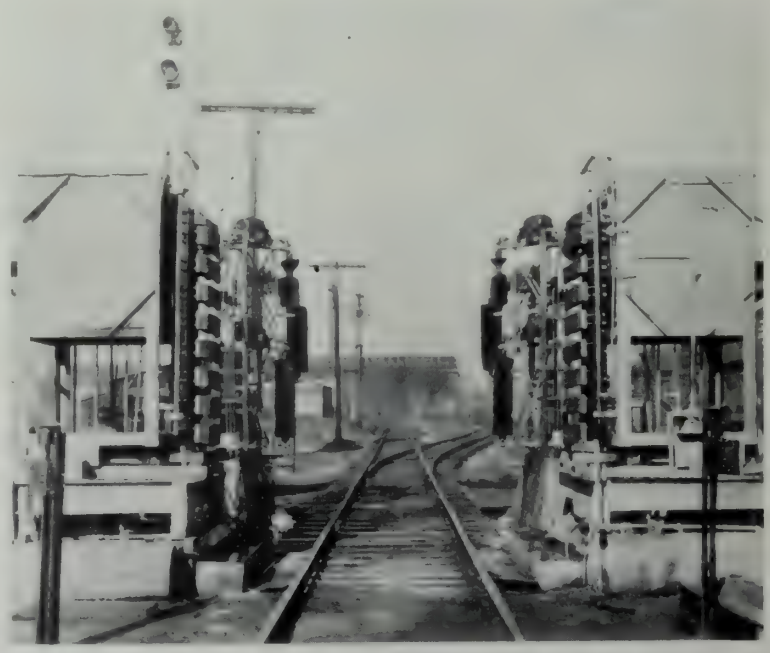
The Baltimore & Ohio Railroad, looking to a less expensive and easier method for cleaning passenger cars, started experimenting a few years ago to develop a satisfactory mechanically-operated car cleaning machine. After making exhaustive experiments, gradually there were developed and put in use two kinds of car cleaning machines. The first is a car washing machine which uses water only and has its revolving brushes work vertically to the sides of a car. The second is a car scrubbing machine, which uses oxalic acid and has a series of brushes horizontally placed, which operate in a reciprocal motion. The reciprocal motion with the cleansing fluid does not injure the sides of the car, even should a car be stopped accidentally while passing through the scrubbing machine. The car washing machine was designed somewhat after a machine made by the Pittsburgh Electric Railway Company. It consists of two structural frames rigidly supported from the ground, one on each side of the railroad track. On each of the frames are mounted three vertical rotary brushes, fitted in a swinging frame actuated by a tension spring and lever to keep the brush in contact with the irregular surface of a car side. This arrangement also permits the brushes to be swung clear of a car when necessary. Each brush is driven by a two horsepower electric motor, directly connected, and makes 300 revolutions a minute. On each side of the machine is a double vertical perforated stand pipe, through which water, at a 60-pound pressure, is sprayed against the side of a car to remove all dirt and cleaning solution.

The car scrubbing machine which was developed by the mechanical engineers of the Baltimore & Ohio, is on the same track and about 40 feet from the car washing machine, also being made up of two frames, one on each side of the track. On each of the frames is a five horsepower electric motor for operating the horizontal brushes in a reciprocal vertical motion. The entire mechanism of this machine is arranged so that each frame may be moved by an electric motor in and out from the sides of a car.

The oxalic acid solution, used for scrubbing cars, is kept in a tank at the base of the scrubbing machine, the solution being a mixture of 20 pounds of oxalic acid to 50 gallons of water. This solution is forced through the spray pipes directly over the brushes by a small pump on the machine, and trickles down over the brushes which are in contact with the sides of a car, while the surplus drains back into the tank.

A force of five men is required to operate both the washing and scrubbing machines. Two men, one on each side of the machines, operate their mechanism; one goes through the trains and closes all windows and doors and the other two clean the vestibules and platforms of the cars. In an eight-hour day, this force has cleaned 100 cars. Quite a difference from the manual force of 11 men to clean one car in an hour!

In cleaning a train of passenger cars by machinery, it is drawn on the track leading between the washing and scrubbing machines and moved very slowly forward by a locomotive. Very dirty cars are first put through the scrubbing process, thence to the washing machine so as to remove all dirt and acid solution. The cars pass through the scrubbing machine at a rate of 14 feet a minute. Cars requiring washing only, pass through the washing process at a rate of 25 feet a minute.



Car Washing and Scrubbing Machines Between the Sides of Which the Cars Are Passed Slowly.

Trucks Used by Electric Lines Up North

By F. H. Fullerton

—Herbert Photo.

Each of These Coolies on the Shanghai Bund Earns About Five Cents a Day. It would Need a Great Many of Them to Do One-Half the Work of a Small Truck.

NOT ONLY does the British Columbia Electric Railway Co. operate motor coach feeders to its street car lines and maintain a special de luxe motor coach inter-city and interurban service, but also it operates a subsidiary motor freight organization known as the B. C. Rapid Transit Co.'s Fraser Valley Motor Coach Freight Line. This freight line serves points in the same territory as those served by the electric interurban service of the company, but as it operates along the roads it touches many points miles away from the electric railway route.

Competition in motor freight service in British Columbia generally is very keen. Consequently the Fraser Valley Motor Freight Line has had to do extensive missionary work to get a fair share of the trade. The fact that an organized company with solid financial foundations is behind the service of the freight line, and the fact that this company is able to give credit on shipments has been one of the features in its success. T. C. Bowley, general manager of the service, says, however, that it is the loyal cooperation on the part of the operators of the freight trucks, the dispatchers and agents which has been responsible for building up the organization to its present status in a comparatively short time, and in the face of the keenest competition. The B. C. Rapid Transit Co. in both its passenger and its freight service recognizes the powerful medium for good will or for dissatisfaction which those employes can be, according to the way they discharge their duties daily, when coming into contact with the public.

In connection with its freight service the company recently issued a card headed "Hints to Operators." This card, pocket size, deals with the handling of freight, and points out to the operators that the future of the service depends upon the method of handling merchandise entrusted to the organization by customers. The card states that the company must have the confidence of the shippers to the effect that it understands how to handle freight. In order to secure this confidence, points which the company desires each motor truck operator to bear in mind are printed on the card. These points are:

Keep your truck clean by sweeping it out.

When handling any goods liable to damage by a dirty floor, such as flour, see that the goods are properly protected.

When handling fish of any description see that it is properly protected in order not to damage other goods by water.

When handling meat make sure that all meats are hung on hooks in the trucks.

See that all merchandise is properly lashed to the sides of the truck so as not to fall over and be damaged, or cause damage to other freight.

See that the tail curtains on the trucks are in good condition, and used on dusty roads and in wet weather.

See that you have a supply of rope, and that all goods that are fragile or subject to damage be protected by burlap or packing.

Do not bruise fruit. All varieties of fruit are soft and liable to bruising and consequent decay.

Oranges, lemons, grapefruit, apples, pears are packed with a bulge on top. Pile only on side or end of package.

Small packages, peaches, plums, grapes, are packed with a cleat on each end. Be sure to pile uniformly one above another.

Bananas—always stand upright. Do not lay flat, or pile other goods on top.

Do not put packages packed in ice on top of other goods.

Do not lift a package by the string.

Do not use hooks on bales.

Do not put heavy shipments on top of light packages.

Following these points are 25 hints believed to be of assistance to motor freight truck operators in handling their trucks, and the cooperation and observance of these points by all operators is requested.

The Dominion Transport Co., the Highway Division of the Canadian Pacific Ry. Has Bought Ten Mack Trucks for Terminal Use. The Picture Shows a Bull Dog Type.

Drive your truck as if it belonged to you.

Repairs reflect on your ability and are costly to the company.

Don't force your motor, but reduce your spark or change to lower gear.

Careless driving is inexcusable and may result in serious injury to yourself as well as to others.

Your truck talks in knocks, squeaks and rattles, and these should be looked after promptly.

Don't neglect your brakes; they may save your neck.

Watch the other fellow ahead. A quick stop by him may be too quick for you. Stay far enough behind to allow plenty of room to stop.

Don't fail to shut off the motor when you stop to unload. A quick turn starts it again and the exercise is good for you.

Don't permit your exhaust to smoke or your muffler to get noisy.

Don't pass a street car on the left.

Don't pass a street car while it is discharging or taking on passengers.

Pass all vehicles (other than street cars) on the left after first sounding a warning whistle and ascertaining the direction to be taken by the fellow in front.

Use good lamps and light them at dusk.

Don't drive on street car tracks except when necessary. Remember that you are often a passenger and do not like to be delayed.

Avoid arguments with police officers as they are "always right."

Use tire chains when necessary.

Signal drivers behind you of your intention to stop or turn. It is courtesy, also compulsory by law, to do so.

Study the ordinances and city laws governing the operation of motor vehicles, and comply with the provisions of these laws.

Report every defect in your equipment and have it passed on by the chief dispatcher and mechanical superintendent.

Use your brakes when getting "spotted." Platforms were not built for bumping posts.

Do not speed. It is a dangerous practice.

"Pull down" your freight to avoid damage when moving from one platform to another.

Do not drink any intoxicating liquor while operating a truck.

Take particular care when backing into sheds, as the doors are easily damaged by carelessness.

Pay particular attention when backing into platforms when pipes, etc., stick over the end.

Some Railroad Trucks

Both Canada and the United States have quickly recognized any important development taking place in either country and through close cooperation have advanced through this mutual exchange of ideas and progressive methods. One such instance is the adoption by Canadian railroads of the motor bus and truck in supplementary service.

In a comparatively brief time, 67 American railroads have adopted buses and 59 have added truck service to their freight facilities, many using both trucks and buses. The addition of highway transportation to the already highly efficient service of the Canadian Pacific Railway marked a new era in that country. This road, one of the largest in the world, had a problem, however, that made the change extremely difficult. Road conditions during the heavy winter months called for great power, and inasmuch as trailer operation was contemplated, a maximum of draw-bar pull was imperative.

During 1928 the Canadian Pacific Railway purchased 10 Macks: four trucks and six tractors. The tractors are used in conjunction with twelve trailers. The trailers are equipped with brakes applied independently of the tractor and were it possible for a trailer to be disconnected while in motion, the brakes become automatically operative.

In a recent article appearing in The Gazette, Montreal, the statement was made that "the draw-bar pull of the 'Bulldog' tractors is far in excess of anything that will be required of them, but it was deemed advisable in view of the heavy road conditions."

That plan of the king in olden times who killed the messenger who brought him bad news has my approval. Blessed are those who bring glad tidings! If you cannot write a good letter—don't!—*Elbert Hubbard.*

Decision by majorities is as much an expedient as lighting by gas.—*Gladstone.*

Any nobleness begins at once to refine a man's features, any meanness or sensuality to imbrute them.—*Thoreau.*

The Central of New Jersey Has This Mack Truck Operating on Coordinated Schedules With Freight Trains, an Unusual Distinction, It Is Declared.

Editorial Comment

THIS MONTH in the AIR and along the RAIL

By Harold Smith

Five Words

Endurance Records

Locomotive Developments

Reciprocity Purchases

Railroad Taxes

A young man in New York recently achieved considerable publicity and broke into print in the national magazines by suggesting that people write down the five words that meant the most to them in life. He gave the five words that he figured meant the most to him, and suggested that in this fast-moving age an analysis of this kind developed serious thought, and brought out the real objectives that one had in life. The idea is interesting but when you try it you will find it is not so simple as you might imagine.

Transportation is changing and moving so rapidly these days that it is really a problem to know what the future holds forth, and to figure just which way we are heading.

Wouldn't it be interesting to apply the same idea to this field? What five words will mean the most to the future of transportation? Why not write down your idea of the five most important words and your reasons and send them in to us? We won't use your name but your ideas might develop some interesting thought.

There are many words to start from, such as, aviation, water-ways, ton-miles, superpower, coordination, cooperation, education, etc.

Speaking of words, there seems to be two predominant ones in transportation this month. The first is Endurance. During the past few months we have had almost an epidemic of endurance refueling flights. In our July issue we referred to the record made in Cleveland and then the 246 hour sustained flight of the two "hard-boiled hombres" in Los Angeles, but St. Louis obscured all these. Forest O'Brine and Red Jackson stayed aloft with a Robin for 420 hours 21 minutes and 30 seconds, and then they had to be paid to come down, the Curtis Airplane & Motor Company offering to pay them on the basis of 500 hours sustained flight if they would land.

These performances are not purely publicity stunts like the flag-pole sitters. They have a real practical value in advancing aviation. They show the engineer just what performance can be secured from the motors and other equipment, and provide data for future design, at the same time demonstrating to the public the safety and possibilities in aviation.

This is not, however, the only endurance record credited to Missouri in July. July 21, the Frisco started its Mikado engine 4113 out of Kansas City, Mo., headed for Birmingham, pulling the "Hot Shot", its fast meat and merchandise train, on an endurance run. It had, as its purpose, no thought of publicity, simply one of developing data. August 8 this engine 4113 reached Kansas City, after making four round trips between that city and Birmingham—482 hours during which the engine covered 5925 miles without knocking the fire or having any shop work done. And she started on her fifth round trip the same day.

During the same month, last year, the Frisco ran an engine over the same territory for 2,940 miles without knocking its fires. The plan this time (last month) was to operate the 4113 for three round trips between Kansas City and Birmingham, a total of 4,410 miles.

A run of this kind certainly should demonstrate the advantages, from an economical standpoint, of modern power, and the possibilities in the reduction of both fuel and maintenance by still further increasing the length of locomotive runs in every day service.

Under the heading, "Talking Points", the Western Railways' Committee on Public Relations, has issued a circular in which it says, "The record freight traffic, which has been moved so far this year by the railroads of this country, has been handled with fewer freight cars and locomotives than at any time since 1923".

Yes, sir, that surely is something to talk about. The Class I railroads on July 1, had 57,912 locomotives, a reduction of 7,012 compared with the number on July 1, 1924, and a reduction of 2,182 as compared with the same date last year. However, the average tractive power has increased from 38,217 pounds to 43,985 during the last seven years. This amounts to an increase of only 15 per cent. Further extensive reductions in obsolete power will not only increase this percentage but also will decrease fuel consumption and maintenance costs. There are still a good many engines in service that are about ready to do a "Peppersass."

The Northern Pacific has ordered eleven more of its Yellowstone type engines, which weigh 1,116,000 pounds in working order. Each of these engines will be able to haul in one train the same tonnage that previously was handled by two trains over its line between Glendive, Mont. and Manden, N. D.

Another word that's kicking up quite a little excitement is Reciprocity. Webster's International defines it as "mutual action and reaction", or, "that relation or policy as to trade, etc., between countries under which special advantages are granted by each to the other". In its present application, however, it gets right down to a question of patronizing home industry, which is becoming more and more an established policy in American every day life. Of course, we have always bought from the corner drug store, prices and quality being equal, actuated by two motives, first convenience; second, the fact that by spending our money as near home as possible we were increasing our local population and in turn our property values. Even the chain stores and the automobile manufacturers have had to meet this problem. They have carried their business to the local communities by establishing local stores.

It, therefore, seems fitting that the same practices encountered in every day life should extend themselves to transportation and other lines of business. It is doubt-

ful how effective the investigation may be which the Interstate Commerce Commission is to make of "reciprocity in the purchases by the railroads and the routing of traffic by manufacturers and dealers." It is not that the principle is fundamentally wrong that brings forth such an investigation; it is the abuses developed under that principle that are subject to investigation.

In no matter what line of business purchases are made the rotative elements that should be considered will seldom vary, quality first, service second and price third. All of these conditions being equal it is then the most logical thing in the world to patronize home industry because by so doing you are advancing your own companies' interests. The real abuse of course is when the manufacturer or producer wields the big stick and places traffic routing before the elements of quality and service.

There is much, however, to be said on both sides of this argument as we have indicated, not because of the basic principle but because of the possible abuses which may develop. We remember one time, years ago, being present when the president of a prominent road was talking to his new purchasing agent. He said, "Son, you have a hard job to handle. It will always be hard, and you are going to have many things to learn. The first problem that you are going to be up against is your friends; the next the traffic department. The action which you must pursue to be successful will be always to consider quality first and then price. If you are thoroughly satisfied that both of these are equal then, if possible without affecting price, etc., give the traffic department consideration; give your friends some of the business, and a little of the business to someone else. By accomplishing such a distribution you can nearly always play safe and the competition will assure better service."

Class I railroads paid six and two-fifths cents on the gross revenue dollar for taxes during 1928. For the first time in history the tax bill exceeded fuel costs. What efficiency and enterprise builds up politics tears down. There is a remedy, however, the ballot box. The railroad employes' vote is large enough to register a forceful objection to this constantly mounting orgy of public expenditures on the part of state and local politicians. These men seem to be getting air-minded, and think that as far as taxes go "the sky is the limit".

Death at the Crossing

The recent report of grade crossing accidents in 1928 contains the most appalling facts and figures. The United States Supreme Court has held that the track alone is sufficient warning of danger but despite this, regardless of all kinds of mobile and immobile warnings, notwithstanding campaigns, posters, laws, gates, and every form of danger signal imaginable the record for 1928 was worse in this respect than it was in 1927. You can have little sympathy for motorists when you learn that there was a greater increase in the number of accidents caused by motorists striking the sides of trains in 1928, compared with 1927, than in the number of highway grade crossing accidents resulting from motor vehicles being struck by trains.

Out of 5,036 highway grade crossing accidents in which motor vehicles were involved in 1928, 1,275 resulted from motorists crashing into the sides of trains, which were either standing still or in motion. This was an increase of 113 or 9.7 per cent compared with the number of such accidents in 1927. Highway grade crossing accidents resulting from motor vehicles being struck by trains totaled 3,761 in 1928, an increase of 74 compared with the preceding year, or an increase of two per cent. Fatalities resulting from motor vehicles being struck by trains in 1928 accounted for 1,898 fatalities, while 277 persons lost their lives as a result of motor vehicles running into the sides of trains. There was an increase of 159 in the number of persons injured in motor vehicle highway grade crossing accidents during the past year compared with the preceding year.

One fact seems to have been fairly well proved. The person who drives his car into the side of a train could never be saved with a slogan, no matter how alliterative and attractive. Neither a gate nor a fence will stop him. Laws are ineffective. There is nothing more peculiarly dreadful in American life than this problem. It seems past all solving. These drivers are out to die. That seems to be the whole story.

Airplane Engines of the Future

It may come as a surprise to many of us to read, in the American Magazine this month, that there isn't, really, any such thing as an airplane engine. Henry Ford says so. You may not have a high regard for the gentleman's knowledge of history, as developed on the witness stand some years ago. You may smile superciliously over his views on a national monetary system, railroading, peace, and a few other things. But when Henry Ford talks of things mechanical his words are listened to or read with profound respect. And this is what he says about the engines now used in airplanes:

> Today there is no such thing in existence as an airplane engine. What we call airplane engines are really automobile engines in all their fundamental principles. Some of our experiments here at Dearborn may help discover what an airplane engine should be like. At present, we are giving our attention to the Diesel engine. The outlook is fairly promising.
>
> The young mind, and every mind, must get together to produce the airplane engine of the future. No one knows now just what it will be like, but you can be pretty sure it will have four characteristics: First, slow speed; second, reliability; third, perfect balance; fourth, it will use a fuel that will be four or five times more powerful than our present fuel. By the time the engine that will meet these requirements is ready, we may have a type of plane that can come down and make a landing at a speed considerably less than sixty miles an hour. That is where one of the big human factors enters in. People won't stand for the hazard of a sixty-mile-an-hour landing. The type of plane capable of landing at a much lower rate of speed has *got* to come if the airplane is to accomplish all we have a right to expect of it.

There seems to be something here for science and mechanics to ponder over. Mr. Ford, we believe, neglected one item: The people are not long going to stand for the noisy motors of the present.

Studying Employe Suggestions

The Southern Pacific Company always has welcomed and solicited ideas and suggestions looking to the improvement of its service, increasing the efficiency of its operations and, in general, enabling it to be of the greatest possible value to the public it serves.

In furtherance of this purpose, to stimulate and encourage the thought of all concerned in this connection, Paul Shoup, president of the company, arranged a little over a year ago for the holding of meetings at regular intervals on all of the company's twelve divisions, as well as by the various departments. At these meetings, which bring out a large

attendance, an opportunity is afforded employes of every rank and station to present their views and suggestions for discussion, and those found to have merit are referred to the proper official or department for careful consideration and adoption if practicable. A great many valuable and helpful suggestions have thus been received and put into practice.

President Shoup takes keen personal interest in the reports of these meetings and says that the company has been extremely gratified in the widespread interest manifested. This, he says, indicates the earnest desire of the rank and file of the company's employes to assist in furthering the cause of good railroading, and of advancing the efforts of the management to provide efficient and economical transportation service.

The Holding Company

It begins to look as if the railroads have put over a fast one on the beloved I. C. C. One line after another appear to be falling into the hands of holding companies, an idea in organization emanating from the brains of astute railroad counsel. Of course the thing isn't really new. Some lines have been owned by holding companies for many years. But some of the most recent holding companies are different, able to do many very interesting things. It seems perfectly safe to prophesy that congress will get after this loop-hole in the law before very long. A majority of the people favors regulation of public utilities, and no one can successfully ignore this sentiment for very long.

Nothing New, It Seems

An article in the June issue of Transportation on reclamation carried the suggestion in its headline that the President, an advocate of waste abolishment, should read it and be happy. S. Jos. De Graff, writing from Oakland, takes good humored exception to the statement that reclamation and the stopping of all kinds of waste originated in the Middle West. Mr. De Graff offers a paragraph from American history in support of his objection. He says:

"In April, 1793, a mooring chain was requested as protection for a floating beacon in Delaware Bay. In approving the requisition for the chain President Washington said, 'Approved as far as it respects the new chain, but is there an entire loss of the old one?' "

A Notable Series Ended

With this issue we bring to a close the exceedingly valuable series of articles on Training for Railway Work. Nine or ten of the articles were contributed by executives of foreign railways in England, Australia, India, New Zealand, South Africa, and by the heads of London's great school of economics. Supervisors of apprentice schools on American railroads are concerned in every example offered to help them in their work of preparing the youth of the land for service in transportation. Some of the plans adopted in these useful schools in our own country will be presented in this magazine in the next year.

The Danger in Boasting

Important developments in aviation follow one another so rapidly these days that keeping abreast of them is difficult. In a national magazine dated August 3 an advertiser used a page to crow over the service given by his spark plugs in the "Fort Worth monoplane which had broken all endurance flight records by staying in the air 172 hours 32 minutes." The popular Literary Digest of August 3 got a bit closer by giving a page to the victory of Reinhart and Mendall at Culver City with 246 hours 43 minutes in the air.

But before the two magazines reached their readers both the records mentioned had been broken at St. Louis by Jackson and O'Brine with 420 hours, and now—

Well, the St. Louis record can not possibly be surpassed before this issue is mailed.

How Air Mindedness Grows

In 1927 the Western Air Express carried about 400 passengers. In 1928 this grew to nearly 7,000, and judging by present traffic, will exceed 15,000 this year. Writing of this growth of air mindedness, recently, an official of the company mentioned said:

"A study of the passenger lists demonstrates that air travel is reaching a sound basis. At the start passengers were recruited chiefly from those who wanted the adventure of flight; they wanted to say they had been up in the air, and they were looking for a thrill. Now the great majority of those who travel by air are business men and women to whom the saving of time is important."

Air mail also is becoming increasingly popular. In 1926 2,856,560 pieces of air mail were transported over this line. In 1927 the total increased to 8,122,000 and in 1928 it reached 15,804,000. The total for 1929 is expected to be very nearly twice the volume of last year.

Broad Street Economics

This piece came out of New York one day toward the end of July:

> The farmers stand more than $1,370,000,000 richer today as a result of the recent uprush in prices witnessed in the grain pits and on the cotton exchanges amid scenes of excitement that have not been equaled in many a day. The advance in prices of the chief grains has added more than $1,200,000,000 to the wealth of their producers and the rise in cotton prices has added more than $170,000,000 to the wealth of the South.

This is the kind of thing that angers farmers. They know that precious little of this wealth came their way, or ever will reach them. Farmers are not fools.

The same dispatch, sent out of lower New York City's grain pit, assigned several hundred million dollars of this great treasure to railroads because, said the oracle, such prices for grain soon would bring out the stored-away crop of 1928—some went back to 1926—and give the roads more than they could haul. We haven't time to figure this out, but it looks very interesting.

Leadership

We always keep our eye on a young man who shows signs of being dissatisfied, especially if he thinks he has anything to offer by way of improving things. The chance that a boy or a young man who is content with the way things are done now will develop into a leader is pretty slim. The restless boy, the one who wants to know *why* things are as they are, and why they can't be done better, shows signs of possible leadership. At times he may be a nuisance. But no boy ever became a leader without making himself a nuisance to somebody—at some time.—*Henry Ford.*

Efforts of the Bolivian government to sell 15 ancient American automobiles at any price, has caused a glut of the used car market there.

Alexis Clermont, Mail Carrier of 1832.

Contrasts in Mail Carriers

By Winsor Williams

ALEXIS CLERMONT accepted a contract in 1832 for transporting the United States mail on foot between Green Bay, Wis., and Chicago. It took Alexis 30 days to make the round trip of 480 miles.

Today Chadwick Smith flies the air mail over the same route in less than two hours. Smith flies at better than 100 miles an hour with his load of mail weighing 1000 pounds, while Clermont trudged along at an average speed of 16 miles a day carrying it in a knapsack at his side with his blankets strapped to his back. Two short bags filled with shelled corn, one containing hulled corn and the other parched, hung on the unoccupied side as he walked through the Indian-infested forests of those days. It was a primitive method of transportation, but the terrain over which Clermont walked with an Indian guide as company was too rough for travel by horseback; even if one were available it would not have been wise for him to hold out this temptation to the Indians, with whom on the most part he was on friendly relations.

The route he followed started from Alexander Irwin's postoffice in Green Bay, then known as Shanty Town. It took him across country by Indian trail to Manitowoc, then proceeded southward to Milwaukee by way of Two Rivers and Sheboygan. At Milwaukee he found only two trading stations, but his history, which has just come to light, showed that there were large Indian settlements just outside the township limits at Milwaukee, Sheboygan and Manitowoc. Between Milwaukee and Chicago there was nothing except a trading post run at Gross Point, Ill. Chicago itself did not boast of much more in the way of habitable dwellings. The population was mostly a floating one, and there were only a few buildings besides Fort Dearborn. Even between 1832 and 1836, for Clermont kept the job for four years, a mail carrier was bound by certain regulations regarding his time and habits. He was permitted to stay only one night in Chicago unless detained by the failure of mail to arrive in Detroit. Letters from that city were carried on foot in the winter, and in the summer came by steamer. These connecting letters waited until the next trip if Clermont's load—which was limited to 60 pounds—was already in his knapsack.

Clermont later became a pilot on steamboats navigating Wisconsin waters, but in 1892 at the age of 88 he again made the journey of 240 miles on foot clad in the identical mail carrier's costume he had worn regularly 60 years before. He arrived in Chicago in time for the dedicatory ceremonies for the Columbian Exposition. And he is said to have told a friend on viewing the splendors that Chicago offered, that he never believed the Windy City would be bigger than Green Bay and added, "those fellers at Chicago were always blowhards, I know'd 'em of old, sir, and you can't fool me."

Air Mail Contracts Pay

Flying Uncle Sam's air mail appears to have been a profitable business during 1928 for the contractors of air mail routes, according to statistics by the aeronautics branch, department of commerce.

The facts appear to reveal that contract air mail operators reached their high tide of prosperity in the year when the government paid a total of $7,433,179 to the 21 operators for flying the domestic air mail.

The operations of individual air mail routes almost doubled over the previous year as new lines, most of them relatively short routes, were added to the network. The report shows that 3639 one way air mail trips were scheduled during the year, as against 1953 in 1927 and 1204 in 1926.

The department also estimated that the mileage flown by all operators of air transport hit a total of 10,000,000 during 1928, as against 5,870,489 in 1927 and 4,318,087 in 1926.

We Object to This

Extension of the privilege of the frank to air mail is sought in a bill (H. R. 741) introduced by Representative Taylor (Dem.), of Glenwood Springs, Colo. The bill was referred to the committee on postoffices and post roads.

Members of congress, members-elect, the cabinet, the President, etc., would be allowed to send air mail matter, provided the weight of such mail did not exceed four ounces, under the terms of the bill.

Chadwick B. Smith, Air Mail Pilot.

Training for Railway Work in New Zealand

By F. J. Jones

M. Inst. C. E.

Auckland Railway Station at Night.

PRIOR TO the introduction of what may be termed an intensive system of education on the state-owned railways of New Zealand, a sound practice had developed under which every member of the service could look for assistance and guidance in his duties from his immediate superior officer.

Thus, in the workshops every journeyman was expected to give any apprentices under him all the assistance he could to enable them to gain practical knowledge of, and make effective progress in, their work. The journeyman looked to his foreman, the latter to his manager, and the manager in his turn to the engineer under whom he worked for such instruction and general guidance as was necessary for the efficient performance of the various duties; and, of course, promotion from a lower to a higher grade was dependent on capacity to perform efficiently the duties assigned for the lower position. Similarly every member employed in any branch of train operating work not only received instruction and guidance from the officer under whose immediate control he was placed, but had to undergo a yearly examination in rules and instructions to ensure that he thoroughly understood all that was required of him for the effective conduct of operations and the safeguarding of the traveling public.

In the locomotive branch, cleaners were required to pass an examination in fireman's duties before being placed on a locomotive, and no fireman was allowed to drive an engine until he had gained an engine driver's certificate. Members of the clerical division were encouraged to increase their general knowledge by the department granting concessions to those who passed either the public service examinations or the university matriculation examination.

On the professional side the department for many years past has insisted that certain qualifications must be held before promotion is granted to its officers. On the engineering side recruits are taken on as cadet probationers, the qualification for appointment being the matriculation examination of the University of New Zealand. At the end of the probationary period, three years, to ensure retention in the service, cadets must produce evidence that they have passed the preliminary examination of the Institution of Civil Engineers, London, or the engineering preliminary examination and the entrance examination in engineering of the University of New Zealand.

No member is eligible for promotion to the position of an assistant engineer until he has qualified as an associate member of the Institution of Civil Engineers, London, or has obtained a degree in civil engineering of the University of New Zealand or other approved university. Similar qualifications are required of cadets in the signal branch and the locomotive branch, the examinations being in electrical and mechanical engineering respectively.

These are the general methods of education which have been operating with good effect for many years, and under them the railways of this country have attained an enviable reputation for soundness in administration and safety in operation. It is only quite recently, however, that education by means of special tuition within the department has been developed, and, although considerable progress has been made in laying the foundations of a comprehensive scheme of education for the whole service, much yet remains to be done before the system can be perfected. The aim is so to arrange the facilities for gaining and applying knowledge relative to the diverse occupations and phases of transportation, that every employe will have an opportunity to reach the position in the service for which he is best qualified and, further, that the whole of the undertaking may benefit from this specialized development of individual aptitudes.

The broad educational principles

This is the last of a series of articles describing educational methods used in foreign countries in training boys and young men for railway work. The author of the concluding article, Mr. Jones, is chairman of the board of management for the New Zealand government railways. If you would like to have the first four of these articles in booklet form for use in your apprentice schools send your address and four cents in stamps to this magazine. Several hundred of these booklets were used abroad; about 75 remain. The remaining articles will be issued in booklet form in a few weeks.

upon which the efforts of the administration have centred fall under two headings: Specialized and general education for the staff; the dissemination of suitable publicity matter among the public.

A central training and correspondence school established by the railway department is situated at railway headquarters, Wellington. All cadets joining the service and taking up clerical work are required to pass through this school. The personal training is for four months, during which time specially qualified instructors teach the new appointees telegraphy and the elements of train working and station accounts, including instruction in tariff charges and regulations. Special lectures are given also on a variety of subjects, such as business getting, courtesy, behavior, health, habits, self-reliance and ambition. By this means the receptive minds of young probationers are trained to obtain a true perspective of the importance of the positions they are to fill, the honorable nature of their employment, and the necessity for developing a high degree of efficiency, coupled with the exercise of the best qualities of good will and enthusiasm in performing their duties. The headings under which this preliminary training is arranged are the same as apply under our correspondence system for teaching traffic, locomotive, stores and maintenance entrants.

Correspondence classes constitute an essential feature of the staff educational system. Any member in the service may obtain free tuition from the railway correspondence school in this way. An indication of the extent to which this facility is availed of may be found in the fact that out of a total permanent staff of 14,000 more than 2,000 are at present obtaining instruction through these correspondence courses. The regulations provide that cadets must pass a junior examination (based on the first course of lessons) before proceeding beyond the probationary period. The second or intermediate course of lessons must be mastered before qualifying for a clerkship. Arrangements are also in hand for a senior examination, to be passed by those qualifying for the higher grades.

A system of apprentice training applicable to all trades in the railway workshops of the dominion is in operation. Under this system three hours instruction a week during working hours is given to all apprentices by specially selected instructors. The students are taught to read and to understand working drawings and blue prints, and are instructed in practical matters and methods in relation to repairs and manufactures. This arrangement will continue throughout the first three years of apprenticeship. The system is yet in its initial stages, but there already is evidence that it is having a beneficial effect on the training of entrants to the workshops. It is considered that the cost will be more than compensated for by the superior quality of workmanship and improved methods which tradesmen so trained will be likely to exhibit and adopt. In addition to this tuition, all apprentices are required to attend night classes at the government technical schools. The specialized railway training should tend to bring out qualities of initiative and leadership, and insure that, as time goes on, the supply of technically qualified and intelligently educated managers and foremen to fill the higher positions in the manufacturing branches of our plant will be maintained.

It is hoped, in view of the rapid development in the scientific management of railways and subsidiary services, a chair of transportation will be instituted in the universities of New Zealand at a future date, and, when this is done, New Zealand railwaymen with special qualifications will have the opportunity to become graduates in the science of transportation.

Another method of education which has been found effective on our system has been the round-table conference. This has been adopted with district managers to obtain unity of methods, and for staff reviews. Conferences of business agents attached to the commercial branch of the department have been held also to report on the year's work, and to devise and put forward proposals for new methods of attracting and increasing business. The divisional superintendents, by conference, have been able to bring into coordination the work of maintenance, traffic, and locomotive officers under their control.

Advisory boards, which will function by conference, are now being set up to bring the selected representatives of public bodies into close touch with railway affairs in order to assist the department in meeting public requirements more efficaciously.

There is a number of railway libraries throughout the dominion, instituted by the enterprise of railwaymen, in which technical works on railway problems find a place. The department, besides obtaining supplies of the leading railway journals and distributing them for the information of executive officers throughout the department, has now set up a reference library in the head office, where standard publications on matters pertaining to railway working will be made available to members of the service. It is the intention to supplement this by establishing an institute, with branch libraries at the principal centers, and accommodation for recreation and social purposes.

There is a strong desire throughout the personnel of the railways for efficiency in service and increased knowledge of transportation matters. This finds an outlet in improvement societies of various kinds in which members are interested. For instance, lectures on railway subjects were delivered last winter before the Railway Officers' Institute in Wellington by university professors and railway officers, while a branch of the Workers Educational Association in Christ church had a winter session of lectures on phases of transportation from one of the professors at Canterbury University College and from leading railway executive officers. This class the department assisted with the supply of railway papers and reports.

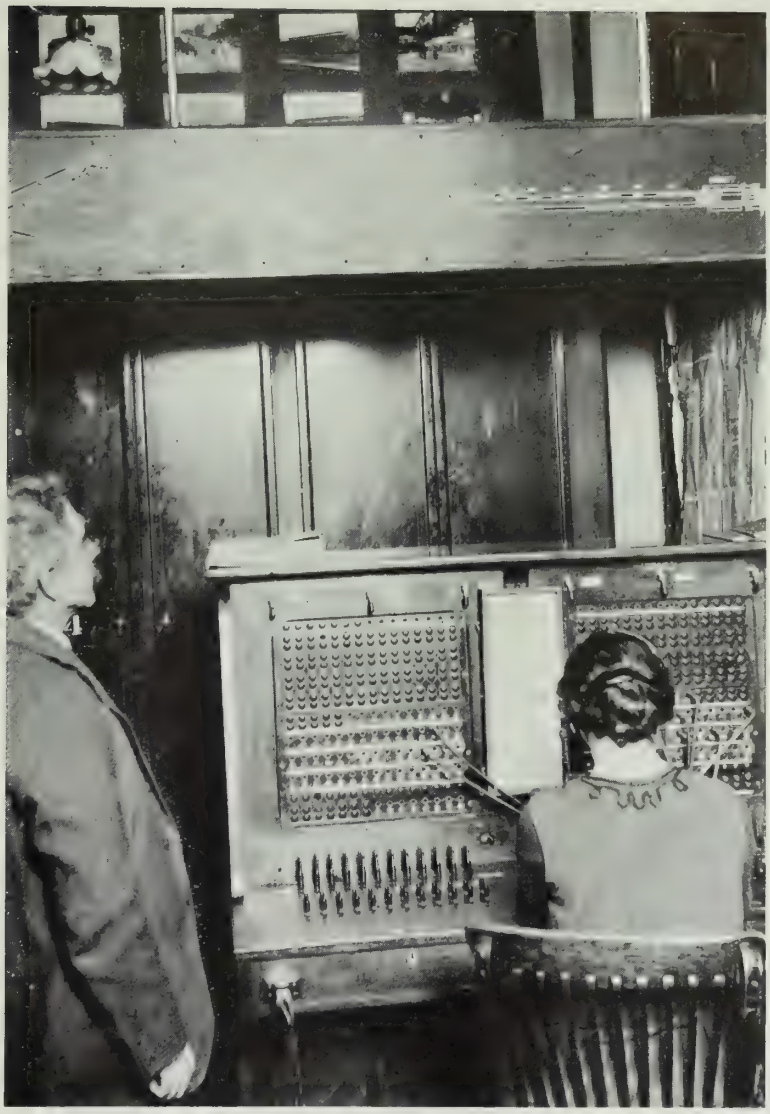
Since last May the department has been publishing monthly the New Zealand Railways Magazine. This journal has a circulation of 20,000 copies, 17,000 copies being distributed free to the staff, and the remainder going to the principal mercantile and trading houses doing business with the railways, to members of parliament, and to public libraries. The object is, as set out in the board's report published with the current year's railway statement, "to improve the relations among different branches of the service by providing a common ground for publicity, and also with a view to keeping the department's clients posted in the progress of railway affairs. Such topics as the economic principles of railroading, cooperation in industry, safety first methods, and matters of general educational or welfare value are featured in the magazine."

Other publicity work of educative value is a safety first campaign, by poster and advertisement, warning the public against the grade crossing danger; the display of posters indicating the advantages possessed by the railways for the conveyance of passengers and commodities; the issue of folders and booklets, to feature special travel routes and facilities; displays at some of the principal agricultural, pastoral and industrial shows; and general press propaganda.

The Billions Who Ride in a City

By

Walter Raymond



Switchboard and Illuminated Diagram Indicating the Position of Every Train in the Subway.

THE baffling mystery evolved a few years ago by a Harvard professor of unimpeachable veracity who told an incredulous world that 150,000 persons were born every day and 100,000 died, may now be solved. The mystery, of course, was to find out what happens to the 50,000 daily surplus of humanity. It may be disclosed that they probably are lost in the New York transit system, in the subway, perhaps bearing out another ancient theory. For the annual tabulation of New York's transit traffic has just appeared, under the aegis of the state transit commission, setting down in mathematical array such staggering totals as only an adding machine or a Tex Rickard can contemplate with equanimity.

It is recorded, for instance, that the subway division of the Interborough carried 870,300,000 passengers last year. Since that is merely twice the population of China, the most populous country on earth, the figure can readily be comprehended. The B. M. T., on the other hand, accepted the nickels of 662,400,000 wayfarers, a total that would coincide with the population of the British Empire if there were half again as many British subjects around the earth going about their traditional business of keeping the sunset away from the Union Jack.

That there must be millions of people in New York with no other occupation than to encourage the rotation of turnstiles is confirmed by the transit commission's statement that the elevated division of the Interborough carried 354,500,000 passengers. Still, that marked a decrease of more than a million under the total of 1926, while the subway lines were making gains of from three to seven per cent. New Yorkers, apparently, care less and less for the fresh air on the elevated that is advertised in the subways.

The labyrinthine regions below the pavement of Times Square continue to be the largest railroad station on earth. In the course of the year more than 86,000,000 people entered the subway at that point, and, in the view of the com-

Herbert Photo.

Car Cleaning Apparatus Used in Berlin Street Car Yard Does the Work of Several Men Quickly and Thoroughly.

mission, "at the present rate of increase the number of fare collections at the Times Square stations probably will reach the 100,000,000 mark in 1928."

Since this does not count the other millions who, having entered the subway at another station, are merely passing through Times Square in going from one side of town to the other, the ultimate total of the millions who pour through that station is something else again.

Finally, the transit commission announces its grand total. "During the calendar year 1927," the report states, "the rapid transit and surface lines in the City of New York carried a total of 2,892,900,000 passengers." In addition to that, "the Hudson & Manhattan Railroad Co. carried 113,100,000 passengers; the Fifth Avenue Coach Co., 69,400,000; the Eastern Parkway, Brownsville & East New York Transit Relief Association, Inc., 9,500,000, and three small bus companies, 1,800,000," making a total, so far, of 3,086,800,000 passengers.

But the transit commission has still another shot in its locker. "An estimate (based on counts by inspectors of the service bureau of the transit commission) of the traffic of the municipal bus lines during 1927," it continues, relentlessly bent on leaving no one uncounted, "gives a figure of approximately 97,750,000 passengers. The Williamsburgh Bridge local line carried 18,300,000 passengers during the year. * * *

"The total traffic, therefore, during the calendar year 1927 on the rapid transit lines, Hudson tubes" (not to be confused with the Holland Tunnel, which is left out of the picture), "street surface and bus lines was over 3,202,800,000."

That's all. The entire population of the earth, according to the League of Nations' report, is about 1,906,000,000. So, apparently, only the Angel Gabriel will ever see enough people to match the transit commission's figures on the prevalence of riding in New York City.

Subway track walkers are an integral part of the safety system used in underground transportation. They are just as much depended upon as the pick-up man is depended upon for the necessary cleaning work.

On the Interborough lines in New York City, and including the elevated there are 164 track walkers. Of these 110 walk the subway, the remainder the elevated. The Brooklyn-Manhattan system employs 40 track walkers, who cover 140 miles.

To be a track walker, one must have a thorough understanding of trains, tracks, signals and roadbeds. Every track walker must serve a form of apprenticeship on trains and in yards. The average person might walk though a stretch of tunnel and not see a flaw in the rail, yet the eagle-eyed track walker spots even minute flaws. The importance of track walkers was indicated a short while ago when a bomb was found. The two men who found it did not know its character, but as it did not belong there they carried it to the nearest dispatcher's office. It was found to be an infernal machine.

Track walkers often make strange finds. The prize find, made recently in New York City, was the remnants of a piano. Keys, parts of the wooden construction and some of the strings were found by two walkers. Had the steel strings come in contact with the third rail it would have caused considerable trouble and possibly a bad fire. How such debris ever reached the subway tracks is still a mystery.

Stray dogs and cats often are found in the dimly lighted tubes. Several times within a few days walkers have found intoxicated men ambling along the tracks, crossing the third rail and barely missing the trains.

Recently, in Brooklyn, there was an abrupt and unexplained turning off of the power. For some time traffic was halted, and finally, by the process of elimination, it was found that a drunken man, evidently while groping along the wall, had inadvertently pulled the switch on one of the emergency

Grand Canyon Lodge of the Union Pacific Railroad At Bright Angel Point on the Rim of the Big Cut.

boxes. He was discovered near the switch that he had pulled.

The subways of New York carry the heaviest passenger service of any railroad system in the world, yet they have an excellent record for safety. Every precaution is taken for possible accident. Even the death of the man at the wheel would not endanger passengers. In the controller handle is the "dead man's button." If the motorman takes his hand off this button the brakes are immediately set and the train comes to a stop. All trains are controlled by both electric and pneumatic brakes and automatic tripping devices shut off the power and apply the brakes if a motorman runs past a danger signal.

Besides the track walkers and automatic devices all employes are constantly on the alert. The tower man watches every train closely as he sets the switches for it to proceed. The train clerk, as he checks the number of cars looks for defects. Dispatchers at terminals are intent observers. Here and there emergency car inspectors are stationed to examine trains as they pass and, when necessary, to make such temporary repairs as may be done immediately, and signal maintainers are posted at frequent intervals to take care of signal trouble. All workers along the route are expected to watch for anything that may be wrong or that looks wrong.

After every run comes an inspection, and general overhaulings are frequent. On the Interborough every one of the 2,000 or more cars is sent to the shops after 1,000 miles of travel. All the parts are examined and checked, so that direct responsibility may be placed.

Emergency alarms and telephones are placed not more than 400 feet apart for use in case the unexpected may happen after all other prevention methods are cared for. These are marked by blue lights. By these means operating officials, fire and police headquarters may be reached in case of need.

School Children

Hopping into their airplane, an army "Jenny," and flying to school 25 miles distant, is the everyday experience of Kenneth Blaney and Kermit Parker, Sacramento youths. They have the distinction of being the only boys in the United States who go back and forth regularly to and from their studies by air. The youths take turns at the controls, but only one of the pair has a government license. Both are students at the Galt Junior College class in aeronautics, and think no more of "taking off" from the local airport for the 25-mile flight than the average student thinks of cranking up his stripped-down "lizzie" to reach his school only a mile away.

The boys own their plane. They purchased it with savings earned by working vacations and on holidays. As to the cost of operating it, they both agree that flying is less expensive than driving an automobile.

The Higher the Lower

Though an airplane approaches nearer the sun than the average vehicle, no one out of grammar school still thinks that the temperature rises with the plane. In fact, fur flying-suits and gloves are only too familiar to the public eye. However, there is a firm doing business in the Southwest which has ordered three planes especially equipped with refrigerating apparatus, for shipment of shrimps to California. Apparently the concern does not want to rely entirely on nature in the case of "the higher the plane, the lower the temperature."

Train Telephone Now Used in Canada

SPEEDING up this dizzy business of living a bit faster, eliminating one more possible chance for relaxing between jobs, comes the train telephone demonstrated by the Canadian National not long ago. This was the first successful simultaneous telephone conversation to and from a moving train.

A business man can now remain in constant touch with his office throughout a journey. Aboard a speeding train he need only go into the car fitted with telephone equipment and give his number. In a few minutes his secretary answers. Or the process may be reversed. The secretary calls long distance, tells the operator that she wishes to speak with John Doe, aboard the International Limited, traveling from Montreal to Toronto.

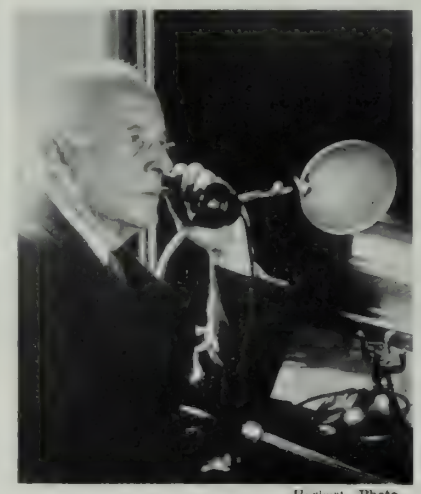
The call is put through to Toronto, from where it travels along the road's telegraph wires to the train, jumps through the ether from the side of the road to the radio antennae on top of the car, and goes into Mr. Doe's ear. John Doe, sitting in a comfortable leather chair before a flat-top desk in a steam-heated, carefully ventilated coach, speeds along at sixty miles an hour and writes and talks just as if he were in his office back home.

Of late several roads have equipped their trains with radio. Passengers in the parlor cars can slip on a head set and listen to chamber music, prize fights and weather reports to their heart's content. But the latest improvement is the train telephone which the Canadian National is now installing aboard its limited trains.

It took the Canadian National's engineering department twelve months to develop the device, which operates as part of its "carrier wave" telegraph system.

The idea is not entirely new in practical engineering, as a carrier telephone system was worked out some time ago in Germany and is in use on trains there. Voice transmission from German trains, however, is a slow process, involving the switching over from speaking to listening, while the Canadian National's phone operates just like the land variety. It provides commmunication between the telephone set on the moving train which, with its associated equipment, is called the train station, and a telephone set in a building on the railway right of way, adjacent to the telegraph lines, which is called the terminal station. The telephone set at the terminal station is, of course, an operator's set, or a "central," for it is at this point that the long-distance telephone lines will be connected to the new system.

Each station consists of a transmitter and receiver, a circuit for connecting these to a telephone, the necessary power supply and antennae systems. At the terminal station use is made of the telegraph lines running parallel to the railway tracks as an antennae. Half the wires are used for transmitting and half for receiving. These are connected to the transmitting and receiving sets through special filters, so that there is no interference between this new system and any telegraph or telephone equipment already operating over these wires.



Herbert Photo.

Vice President W. D. Robb, Can. Nat'l. Rys. Telephoning From a Train in Motion.

At the train station, the antennae consist of two groups of four parallel wires on the roof of the car.

The power necessary to operate the various parts of a set is obtained from a small motor-generator. At the train terminal this is driven from the car storage batteries and at the terminal station from the 110-volt lighting circuits.

The path taken by a conversation from a person on the train is through the transmitting equipment, over the transmitting antenna, over the lines to the terminal station, through the receiving equipment and from there over the long distance telephone line to the called party; or if the called party is on the train this will occur in the reverse sequence.

As far as a person wishing to telephone from the train is concerned, the operation is the same as placing an ordinary long-distance telephone call. He steps up to the operator on the train and tells him the name and number of the party to whom he wishes to speak. The train operator then signals the terminal operator and gives him the necessary information. When the call is ready, the operator will notify the passenger, and the passenger will then be able to converse with his called party the same as over an ordinary telephone circuit.

Strange Arithmetic

Charles Schwab asked a colored porter, who had often attended him, the average tip he received, and was told: "One dollah, sah." When Mr. Schwab was about to leave, he handed the man that amount, whereupon the porter was profuse in his gratitude. "Thank you, sah, thank you," he said with a low bow. "You are the only gentleman what ever comes up to the average."—*Boston Transcript.*

Railroad Time by Radio

The first radio electric clock ordered by a railroad company is in operation in the new passenger station of the Baltimore & Ohio in the Chanin Building, Forty-second street and Lexington avenue, New York. This is a master clock, controlling others in the ticket office and waiting room, and about 500 clocks in other parts of the building. Correct time is picked up daily, at noon and at 10 p.m. by a radio set built into the clock.

The radio will set the clock automatically as the signals are received from the navy radio station at Arlington, Va.

The Primitive Americans

Senator Dill of Washington told the senate one day recently, that our railroads are backward in not having radio communication.

The senator had the clerk read a statement by the Radio Protective Association, charging that the installation of radio telephones on trains was prevented by an agreement between the Radio Corporation of America, the General Electric Company, the Westinghouse Electric Company and the American Telephone and Telegraph Company.

Pointing out that the United States leads in most fields of radio and wireless endeavor, Senator Dill declared "we are not abreast of other countries" in the use of radio telephones.

Little Stories About Big Men

LIFE HAS its strange paradoxes, its contradictory aphorisms. We tell our boys that real progress and success in the business world nowdays are impossible without education. The college trained man, we continue to insist, is the one best bet for the future. But the records of life go right on disproving these things, year after year.

We are not trying to revive an old and profitless argument. We merely are telling tales in this department a good many of which prove that while a college degree is a perfectly wonderful thing and helpful, men who have none, men who never even were graduated from high school, have forged ahead, and reached the heights, their names known to the whole world. Obviously, it was harder work, it took more years, it was gruelling and wearisome, and when they achieved the final climb they were pretty well worn out. Doubtless the trained man might have finished the work in a quarter the time, and perhaps have had others carrying most of the load while he went on to other jobs. The untrained man carved his way through difficulties and long deferred hopes he might have missed if science had helped him along.

When John Wesley Hyatt received the coveted Perkin medal in 1914 for the most worthy and valuable work in applied chemistry, he stood smiling and happy, but much confused in the presence of a company of the nation's most noted scientific men. He had never expected any such honor.

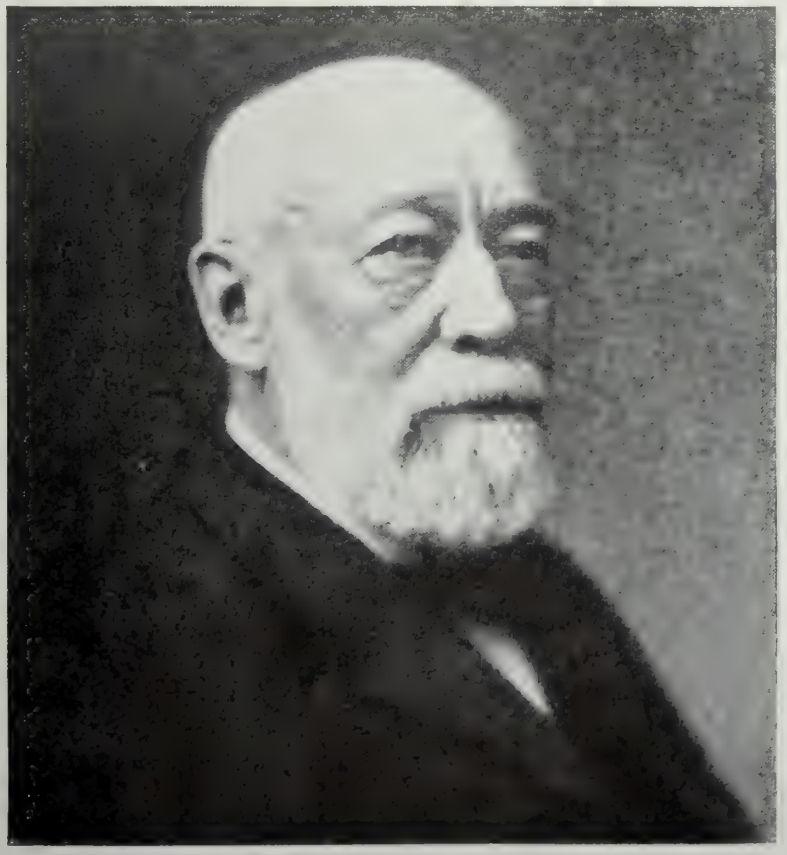
"You have overlooked my lack of early training in the sciences," he said, "the sciences with which you are all familiar, and look only to results which have been obtained mainly by persistent, and many times mistaken, experiments. Some successful experiments I might never have made if I had been familiar with the danger theories of some learned men."

The strange part of this story of the Perkin medal is that most of us, reading it, would think at once of roller bearings. In the minds of the majority, doubtless, the words Hyatt and roller bearings belong together; but when the Perkin medal was awarded him Mr. Hyatt had given most of his thought and toil to entirely different things. Indeed he had to his credit when he died in May, 1920, 250 patents practically every one of which added something to the convenience, the happiness and the comfort of human beings. Just as many of us think only of Thomas Edison in connection with things electrical so do we associate the name of John Wesley Hyatt with roller bearings. But Edison did not invent everything electrical or phonographical, and Mr. Hyatt did not invent anti-friction bearings.

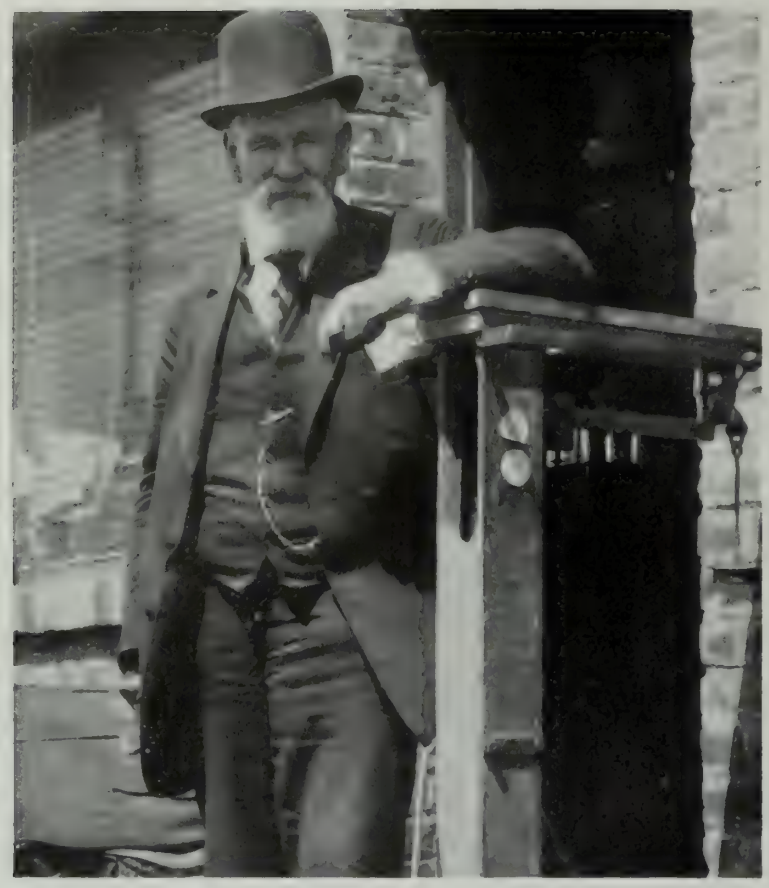
Let's get this straight. He did invent the spiral type of roller bearings, but long before he made these the world had anti-friction bearings of other types, a fact his biographers are careful to set down.

John Hyatt seems to have been, like Tyndall, a firm believer in the scientific use of the imagination which very often is better than many books and much training. He was born at Starkey, Yates County, N. Y., in November, 1837, educated, if you use the common expression, in a public school and later in Eddytown Seminary where he displayed excellence in mathematics. At 16 years—he couldn't have been overburdened with education at that time—he went to Chicago to learn the printer's trade. He worked at it for ten years sustained, doubtless, by his imagination that such a calling could be made profitable. During those years Hyatt perfected his first invention, in 1861, a family knife sharpener including with it a new method for making solid emery wheels. In 1863 he moved to Albany, N. Y., where he worked as a printer for two years more, and then started definitely, it seems, on an inventor's career.

Mr. Hyatt had a lively imagination, as the record shows, and a keen brain. He had long been thinking and experimenting with materials for making billiard balls, and in 1870 patented a machine for turning them, a method by which an unskilled workman could finish them with accuracy. He had used a little bottle of liquid cuticle, for the pro-



John Wesley Hyatt



Captain Thomas Patrick Henry Whitelaw.

tection of fingers made sore in laying fonts of new type. He never had found a material of the hardness, beauty and tenacity of ivory, until one day the bottle of collodion leaked and formed a little disk about the thickness and size of his thumb nail. After some research he found that it was made of nitro-cellulose, dissolved in ether and alcohol. He then knew nothing about nitro-cellulose except that he had read of its use as a surgical dressing; the experiments of Parks, Rollinson, Pierson, Spill, and others, in their attempts to make a solid, plastic material from nitro-cellulose were unknown to him. None of these men had ever succeeded in making a pound of useful, beautiful material at all analogous to celluloid. The best results they ever obtained was a material comparable to hardened linseed oil putty. Hyatt started without any knowledge of these previous trials and failures, and made his own experiments. The story can not be told here. It is too long, too technical. It was told when the Perkin Medal was conferred upon Mr. Hyatt for distinguished services in the field of applied chemistry and engineering, at a meeting of the New York Section of the Society of Chemical Industry, at the Chemists' Club, New York, January 23, 1914.

When Mr. Hyatt designed his spiral type of roller bearing in 1890, he was working on some sugar mill machinery and had perfected a crusher that extracted a much higher percentage of the sugar than had been recoverable up to that time. He could not obtain bearings capable of standing up under the heavy loads imposed upon the journals of his new mills, and therefore turned his inventive genius toward the perfection of what he needed. After many experiments he developed a roller bearing, utilizing rollers wound from flat strips of steel. In addition to the greatly increased load-carrying ability of this bearing, he found that it saved a considerable amount of power, and required lubrication only at infrequent intervals.

The Hyatt Roller Bearing Company was formed in 1891 to manufacture the new bearing for machinery of all kinds. Some of the first Hyatt line shaft roller bearings built are still in operation after 38 years of continuous use. A few years later when the pioneers of the automotive industry were building their first cars they turned to Hyatt for bearings to carry the loads at vital points in their cars, and to transmit the greatest possible amount of power from the engines to the wheels.

Associated with Mr. Hyatt shortly after he began to manufacture roller bearings were A. P. Sloan, Sr., and his son, A. P. Sloan, Jr., who is now president of General Motors. Mr. Sloan, Jr., soon became the leading spirit in the Hyatt organization and directed it personally through the years of its growth from a small output of a few bearings a week to a capacity of over 50,000 complete bearings a day.

John Hyatt never had a hobby except inventing. Even after he was 70, he spent Sunday mornings, as well as the rest of the week, at his office. He was always working, always expecting that the invention then engaging his attention would soon bring him financial rewards, clean up his obligations, relieve him of anxiety, and enable him to live in peace. His confidence in the final good outcome of things never wavered in the darkest hours when others were gloomy. He had no time for hobbies, and no inclination for indulgence in them; but if a mechanical or chemical problem presented itself to him, he was impatient until he had solved it, or proved it impossible to solve.

He was eager always for action, results, a trait apparent in the last moments of his life. The end came, as he wanted it to come, suddenly. Just before he became unconscious, he said to his son's wife: "If I have to go, I want to go damned quick."

"He was a good man," said an old friend not long afterward. "A good man and he stayed in character to the end."

Captain of a Ghost Fleet

Capt. Thomas Patrick Henry Whitelaw — some name — owns 62 ships. Tall barks, stately yachts, crack ocean liners, stubby freighters, tugs, a warship, and a pair of submarines.

If they were assembled the Whitelaw fleet would be the greatest on the Pacific Coast. The name of Whitelaw would rank with those of Dollar, Inchcape, Kylsant and Franklin.

There is a "catch" here. Sixty-one of Captain Whitelaw's ships are sunk in salt water. The other is the wrecking tug Greenwood, moored at Islais Creek, Oakland, Cal.

Whitelaw is a wrecker and has

—P. & A. Photo.

Chief Wolf Crawler of the Flatheads; President H. A. Scandrett of the Milwaukee Railroad; H. M. Albright, Director of All National Parks, and W. B. Dixon, Passenger Agent, Smoke the Pipe of Peace at Re-opening of Yellowstone National Park. Mr. Albright Doesn't Seem Greatly Pleased Over His Share.

been such for 60 of his 82 years. He has bought his ships "as is and where is," spitted on reefs, blown ashore in storms, sunk in various Pacific Coast harbors, some as burned hulks in the mud or as scrap iron at the junk yards.

The captain is a model and businesslike shipowner, despite the handicaps of circumstance. He guards his clear title to every one of his sunken fleet. Let anyone touch his property and the owner will be heard from.

"Scrap iron is worth money," explains the captain. It was scrap iron that Whitelaw turned into his golden fortune.

The Lyman Stewart was a fine new oil tanker of the Union Oil Company in coastwise and offshore service. Whitelaw owns her now. In a fog several years ago she lost her course and piled on the rocks of Land's End. Her broken hull can be seen now between the swells that break on the shores of the Golden Gate. "I got a full cargo of gasoline and a lot of machinery off her," says the captain. "And wait until the price of scrap iron goes up."

The Progreso in other days took full cargoes of fuel oil across the Pacific and never had a breakdown. One day she caught fire and exploded. Lives were lost, and a once fine ship remained a charred hulk in the mud near Oakland Mole. Captain Whitelaw bought her and owns her now.

A white-winged Danish bark came 'round Cape Horn 20 odd years ago and hove to off the Golden Gate. A gale started blowing, the ship drifted shoreward and was caught. She drove on the beach below Half Moon Bay and broke up. Whitelaw owns her, too.

Over on the mud flats north of Goat Island is another forgotten hulk. Some sailing ship. Whitelaw keeps his title to her in a safe deposit vault somewhere. Some day she'll be worth something, he says.

From the Columbia River to the Mexican line, and below that, too, the Whitelaw fleet are strewn. Some day, when the price of scrap iron goes up, they'll be called into service.

Then there are the submarines. Whitelaw bought them from the government six years ago. They had served in the World War, and then had been retired as obsolete.

The captain might have sold them to the Chinese or some Latin-American republic ambitious for a navy. But the government forbade that. So after removing and selling one of the engines, he moored both subs in Islais Creek.

One day some boys were playing. A valve was opened, the water poured in and down went both submarines in their last dive to date.

Rules For Air Liners

Maximum safety in air travel is assured, says the American Air Transport Association, if two simple rules will be followed by the passenger before stepping into any plane. The association's rules are:

Examine the plane for its department of commerce identification number. It will be found, preceded by the letter C or NC (as C-697 or NC-154) on both wings and on the rudder. The numbers show the plane has passed the rigid tests of the government and is airworthy.

Ask the pilot if he is licensed and if there is any doubt ask to see his license. He must carry it with him and is required to show it on demand of any passenger. Only transport pilots and limited commercial pilots may carry passengers for hire. Others break the law and should be reported to the nearest authorities.

The association points out that all the larger commercial air transport companies use only licensed planes and pilots and both are required to undergo exhaustive tests at regular intervals.

Ninety per cent of all aircraft accidents occur in unlicensed planes operated by unlicensed pilots. These figures alone should warn the prospective passenger to exercise every care.

A Refrigerator Car With No Ice

Silica Gel the Secret

By James Barton

It was about 70 years ago that the first attempt was made to transport a cargo of perishable freight in a car under refrigeration. The car used was an ordinary box car of the early type, with two shelves or platforms on which was placed about 1500 pounds of cake-ice as the refrigerant. Improved types of cars of better construction followed, and so the transportation of perishables grew to be an important branch of the railroad. It is estimated that today there are considerably more than 150,000 refrigerator cars engaged in handling this class of traffic.

During the period of development of the refrigerator car from its inception, very little thought was given to working out a suitable substitute for ice. Some ideas in mechanical refrigeration were introduced from time to time, but little progress was made until the safety automatic iceless car, using Silica Gel as an adsorbent, appeared about two years ago. This new iceless car was found to be very practical as it has no moving parts; therefore, after many successful demonstrations, a fleet of them were built and placed in regular service.

Twenty-five iceless refrigerators are now employed constantly in shipping frozen fish from the Atlantic seaboard to the Far West and the southwestern states. The fish consists principally of haddock caught off the coast of New England. It is prepared by a new method of quick freezing, and is carefully packed in cartons. It is then put aboard the safety iceless cars at a temperature of about 15° F. and goes to its destination with practically no variation in temperature, notwithstanding that in some instances it is on the road for ten or twelve days, and travels through extremely high temperatures.

Prior to the time when safety cars were available, frozen fish was shipped from the Atlantic Coast in the regular ice bunker type car. This refrigeration was insufficient to keep the fish properly frozen, and it was necessary to remove the load every 600 or 800 miles and place it in cold storage for several days for refrosting before continuing the journey. Now, millions of pounds of this haddock have been shipped from 1500 to 4000 miles during the past few months, and reports indicate that every pound of it was delivered to consignee in perfect condition.

Close-up of Frozen Fillet of Haddock Upon Unloading, Ready for Market in California.

Preparations are being made to use these iceless refrigerator cars in other fields, for packing house products, dairy products, frozen eggs and cream, and it will not be long before they will be used extensively in handling fruits and vegetables.

There are many features of the iceless car which make it extremely attractive, both to the carrier and the shipper. Chief among these are:

The time saved by not having to stop cars en route for re-icing.

The elimination of the constant dripping of brine from meat cars on rails and fittings which causes considerable damage.

The ability to produce extremely low temperatures for frozen products, not now possible with ice.

The increased loading space due to refrigerating apparatus occupying only half the space now used for ice, in the ice-box type of car.

Overhead refrigeration which produces the same even degree of temperature throughout the entire car.

Silica Gel, the principal factor in this system of refrigeration, is a hard, glassy material resembling clear quartz sand, of the chemical formula SiO_2, and is chemically inert toward practically all substances. During the manufacture of Silica Gel, the process is carefully controlled so that the physical structure of the finished product is of an extremely porous character. The pores are so minute they cannot be detected under a microscope, but a study of its action indicates that it must possess such a structure. It has been determined that the voids constitute 41 per cent of its volume.

The presence of these minute voids gives Silica Gel the ability to absorb relatively large quantities of vapors. As an example, a quantity of Silica Gel placed above water in a closed vessel will absorb, or take up, water vapor to the extent of 25 per cent of its own weight. If it is then removed from the vessel and activated by heating, the water vapor will be driven out and the Silica Gel rendered capable of adsorbing more vapor. This action is purely physical, and the cycle may be repeated indefinitely, with no alteration in the structure of the Silica Gel, or decrease in its adsorptive power. It is this peculiar property of Silica Gel which forms the basis of the operation of this iceless refrigerator car.

As applied to a refrigerator car the apparatus consists essentially of three main parts, namely: the adsorber, (containing the Silica Gel), the evaporator, and the condenser. It may be described briefly as being identical to a compression type machine with the compressor replaced by the adsorber; the adsorption of the refrigerant vapor by the Silica Gel corresponding to the suction stroke of the compressor; and the activation of the Silica Gel to the discharge stroke. No power need be generated for the Silica Gel system, the necessary heat being applied directly to the Silica Gel.

(Turn to Page 44)

What Have You Done To Assist Your Enginemen?

From the days of the DeWitt Clinton the cut-off used has been left to the engineman's sense of feeling and hearing. You have trained him and he has responded nobly. A careful and conscientious engineman may approximate correct cut-off but modern science can do more

"Bigger and better" locomotives consume up to $20,000 coal per year. Tractive effort has been multiplied. The losses brought about by incorrect cut-off have been increased proportionately.

Because the LOCO VALVE PILOT

shows the exact point of cut-off to be used at every speed and for all tonnages. On the dial in the cab the longer hand shows speed, the shorter shows cut-off.

If you want to haul 10% more tonnage and save 8% coal, write for bulletin "Railway Fuel Economy."

Cut-Off & Speed Recorder Corp.
230 Park Ave. - New York Central Bldg.
New York

New Lounge Car on the Baltimore & Ohio's Fine Train "Columbian," Between New York and Washington.

On the Delaware-Lackawan'

(Continued from Page 10)

gen Junction—Secaucus line, two miles, a total of 69 miles of line.

The suburban service of the Lackawanna between the terminal at Hoboken, N. J., and points as far west as Dover, N. J., as is generally known, has been maintained at a high standard. Most of this commutation traffic originates on its southerly line between Hoboken and Dover, known as the Morristown line. This line passes through a densely populated section comprising such towns and cities as Newark, the Oranges, Maplewood, Short Hills, Summit, Chatham, Madison and Morristown, the latter city being 31 miles from Hoboken terminal. There are three other towns on this line between Morristown and Dover, but Morristown is considered the westerly end of the suburban zone. The Montclair branch, extending northward 5½ miles from Newark to Montclair, passes through Ampere, Watsessing and Bloomfield. This line for its entire length is the source of a heavy suburban traffic. The branch line to Gladstone, extending southerly from Summit, 22 miles long, which passes through the wealthy community of Bernardsville and 12 other towns, is rapidly developing a substantial commuting traffic.

The northerly line of the Lackawanna, between Hoboken and Dover, known as the Passaic-Paterson Line, is used mostly for freight traffic as it is the better adapted of the two lines by location and grade line for that traffic. The Paterson line serves Passaic and Paterson and 15 other towns of minor importance. The suburban travel on this line although relatively light, as it is farther removed from the centers of large population and passes through a section of the state generally much more lightly settled than that traversed by the Morristown line, recently has taken on a new impetus and seems certain to come into its own in the near future.

The Lackawanna's new terminal warehouse in Jersey City-Hoboken is about one-third completed. This structure, to be used only for general storage and distribution purposes, probably will be the largest of its kind on the Atlantic seaboard. Its vastness is shown by the fact that 240 cars of steel, 800 cars of cement, 4,500 cars of sand and gravel, six cars of glass, 14 cars of sash, 50 cars of cement blocks and 100 cars of steel doors and miscellaneous material—which would make 145 trains of 40 cars each, will have been used in the completed building. The storing capacity of this warehouse will be about 4,200 cars or 147,000 tons. It will be ready for service next spring.

Pier No. 10 at Jersey City-Hoboken is now about 95 per cent complete, and probably will be in commission by the end of August or a little sooner. This pier is a part of the Lackawanna's plans for the enlargement and re-arrangement of its freight-handling plant on the Jersey shore, in connection with its new terminal warehouse. It will provide for ample, free and rapid movement of both inter-harbor and export and import traffic between warehouse and steamer. The pier is 1,200 feet long, 40 feet wide, of low-water grillage and re-inforced concrete type of construction, the grillage supported on fir piles up to 100 feet in length taken from the great forests of the Pacific Northwest. It provides 1,200 feet berthing space for ships and carries two tracks spaced sufficiently wide to permit the use of a revolving crane to facilitate the handling of heavy and bulky freight between cars and boats.

New Lounge Cars on the B & O

The mechanical engineers and shop forces of the Mount Clare shops of the Baltimore & Ohio have built two unique lounge cars, representing an entirely new style and type of passenger equipment. They are divided into two parts, both available for men and women. One section is furnished and finished on the pattern of a home-like living room or drawing room, with comfortable settees, deep cushioned arm chairs, library table and writing desk. The other part, separated from the living room by glass partitions and swinging door, is a club smoking room, which has the same tasteful and home-like appointments.

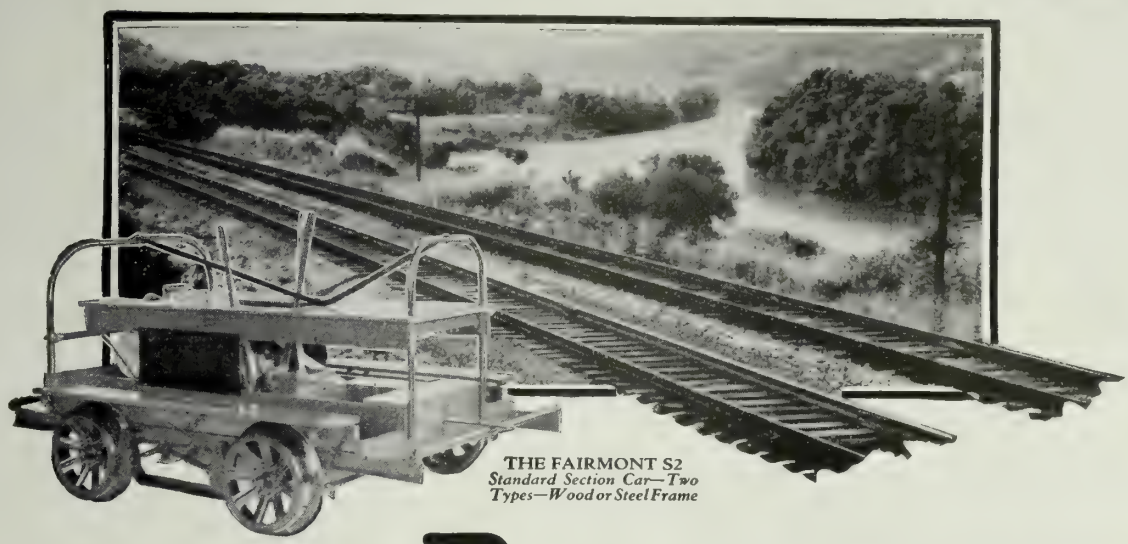
These two cars were used for the first time by the company's new train, the "Columbian," June 16, between Washington and New York.

The men at Mount Clare who built the cars also built the two huge passenger locomotives, the "Lord Baltimore" and the "Philip E. Thomas," used in heavy passenger service on the mountain grades of the Alleghenies.

Americans Abroad Are Fliers

On Austrian air lines, last year, of the 4,229 passengers carried, 875 were American citizens. Only one other country, Hungary, exceeded the number of passengers from the United States; Hungarians carried numbered 1,374 or 32½ per cent of the total, compared with the American 21 per cent.

The highest authentic speed record on a British railway is 102.3 miles an hour, achieved on a journey from Plymouth to Paddington in May, 1904, by the engine City of Truro.



THE FAIRMONT S2
Standard Section Car—Two Types—Wood or Steel Frame

Built to anticipate today's higher standards of Quality *and* Performance

The builders of Fairmont and Mudge Railway Motor Cars are not satisfied with meeting present-day needs in motor-car-service—their *ideal* demands planning ahead for the needs of far-off days to come. As the forward vision of railway engineers is constantly achieving betterments in railway service, so Fairmont devotes its utmost engineering skill, facilities and long experience to the development of motor cars which shall keep step with those improvements.

Over half of all the motor cars in use are Fairmont Products—a tribute to Fairmont efficiency and quality.

Performance on the Job Counts

FAIRMONT RAILWAY MOTORS, INC.

General Offices: FAIRMONT, MINN. *General Sales Offices:* CHICAGO, ILL.

Branch Offices: New York City; Washington, D.C.; St. Louis; San Francisco; New Orleans; Winnipeg, Can.

BALDWIN LOCOMOTIVE WORKS, *Foreign Representative*

Fairmont AND Mudge

RAILWAY MOTOR CARS

FAIRMONT AND MUDGE PRODUCTS

Section Motor Cars
A2—M2—S2—M14—WS2

Inspection Motor Cars
E14—C1—M19—MM9

Weed Mowers and Discers
M24—M23

Weed Burners
B(M27)—C(M27)

Gang and Power Cars
MT2—A4—A5

Push Cars and Trailers
T1—T2—T3—T12—T20—T24—T25

Roller Axle Bearings
Ringseald-Axlsaver
Bower—Hyatt—Timken

Motor Car Engines
QB—PHB
PHA—QHB and W

Wheels and Axles

THE RAILROAD WORLD KNOWS

The Row in Manchuria

(Continued from Page 12)

of transporting swarms of refugees fleeing from the revolution in Western Siberia and Russia.

A great share of the credit for the splendid condition of the Chinese Eastern Railroad when it was handed back to the Russians was due to Col. B. O. Johnson. Very generously he tries to share this credit with B. Ostroumoff, the Russian engineer, then the general manager of the road. When the Czarist government was completely subdued by the Bolsheviki, and the Soviet power extended all over Siberia, the Soviet government fell heir to the Chinese Eastern. The Soviet authorities then were cultivating a friendship and a close relationship with the Chinese. Voluntarily they abrogated the extraterritoriality treaties and all other special privilege treaties wrested from the Chinese by the former Imperial Russian government. The Chinese tried unsuccessfully to have the Chinese Eastern treaty included with those abrogated. However, the Russians made an agreement that they would employ one Chinese for every Russian in the service of the road.

Under this agreement the Chinese Eastern Railroad has been operating until the present. At the time of writing this article this railroad is once more the cause of a disturbance of the pleasant relations between two great countries. Rumors of war fill the air. Unless the present disagreement is settled soon, Japan and others may find themselves dragged into the quarrel.

Steel Rail Stresses

As the result of extended tests on rails subjected to heavy service conditions, the bureau of standards of the department of commerce has concluded that the steel in these rails had not been subjected to stresses greater than its endurance limit, and that fatigue failures in service arise from preexistent nuclei. This investigation is in line with the policy followed by the bureau for many years, of cooperating with railroads and manufacturers in problems relating to the betterment of railway equipment, with particular reference to improving the safety of travel.

It has long been recognized that the so-called transverse fissure type of rail failure was of the fatigue type, the result of the repeated stressing of the rail by the passage of trains. The failure always spreads from a well defined nucleus in the interior of the head of the rail. The origin of this nucleus has never been definitely established. It is thought by some investigators to be present in the rail before placing in service but by others to originate in service due to excessive wheel loads.

Recent developments in the endurance or fatigue testing of metals has made possible the determination of the stress, called the endurance limit, to which a metal such as rail steel may be repeatedly subjected without causing failure. Tests to determine this value for new rails from several different heats of steel have been previously reported at the bureau in Technologic Paper No. 363. In those tests of new rails it was shown that service stresses might increase or decrease the fatigue resistance of the rail steel according to whether the service stresses, the exact values of which are not at present determinated, were less or greater than the endurance limit of the steel.

Through the cooperation of the Baltimore & Ohio and the Canadian Pacific Railway, rails from the same heats previously tested were taken out of track and returned to the bureau after having been subjected in some cases to over 20,000,000 tons of traffic in about one and a half to two years service.

A redetermination of the endurance limits showed that the stresses imposed in service had not affected the endurance properties of the steel, the endurance limit being practically the same after as before service.

Silly Things About Aviation

Rear Admiral Moffett, chief of the navy bureau of aeronautics, ridicules the idea that the next war, if ever we have another, will be fought almost entirely in the air.

"Aviation," said the admiral, "has abolished and replaced nothing. It will not interfere with other means of transportation—railroads, steamships and transports—but will be supplemental to them. Similarly in national defense, especially at sea, the aircraft will remain supplemental for many years to come, if not indefinitely."

One pedestrian is killed in the United States every eight hours, a statistician says. That pedestrian must be getting awfully tired of it.—*El Paso Times.*

Every one must perceive that an almost universal discontent with their condition pervades mankind.—*Joseph Hall.*

Getting Rid of Noise

Elevated and subway systems in Berlin are operated by the Berlin Elevated Railway & Subway Co. One of its subsidiary companies, Berliner Nord-Sued-Bahn Aktiengessellschaft, reports that it has tried several methods of sound deadening, including the use of felt under the rails, and also the use of longitudinal wooden ties. These methods were found unsatisfactory, and now have been replaced by wooden cross ties embedded in gravel, similar to the methods used in Hamburg. In one section of the city, where the elevated structure consists of a long bridge over the main railroad line, it has been found most satisfactory to use wooden cross ties mounted on longitudinal steel beams.

Train Names in England

The naming of trains, freight and passenger, is a custom not at all peculiar to the United States. Americans visiting in England feel themselves "at home" in this respect. Between London and Edinburgh one can ride the "Flying Scotsman," race north on the "Royal Scot," or try railroading with a feminine touch on the "Queen of Scots."

Bound for Paris one can travel on a bilingual express—it's the Golden Arrow, on the English side of the channel and the Fleche d'Or on the other.

The Southern Belle seems to promise a trip to the land of cotton, but it's really just the parlor car way of getting from London to the sea at Brighton.

Even the locomotives carry names like "Sir Christopher Wren," "George V" and "Howard of Effingham;" but the real thrill to an American who resents the partiality with which names are showered upon Pullman sleepers in his own country is to find English freight trains bearing names.

Here, of course, they are not freight trains at all, but "goods trains." There is, for example, that crack goods train called the "Flying Pig." If anything can make a freight train romantic it is a name like that.

And then there is the Grimsby Fish, which races down to London from Grimsby with fresh fish for English appetites.

The Southampton Meat is the butchers' favorite, as might be expected. It hustles beef and mutton up to the metropolis in refrigerator cars loaded at Southampton, where the meat of England comes in from Australia and the Argentine and New York.

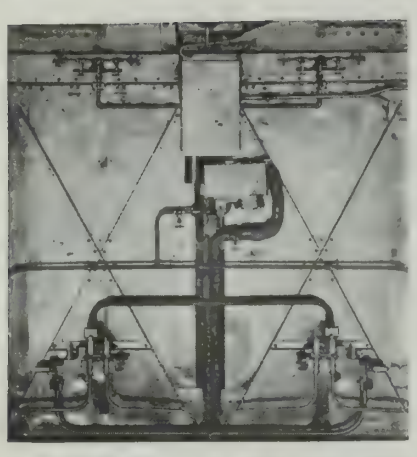
The AMERICAN AUTOMATIC CONNECTOR

Is the only practical automatic hose coupler in service today.

We have not spared time or expense in the development of our connector and we will continue this development work.

When a better automatic connector is built we will build it.

THE CONSOLIDATED CONNECTOR CORPORATION
118 Noble Court • Cleveland • Ohio



Complete Refrigerating Apparatus With Steel End of Car Removed.

Refrigerator Car Without Ice

(Continued from Page 38)

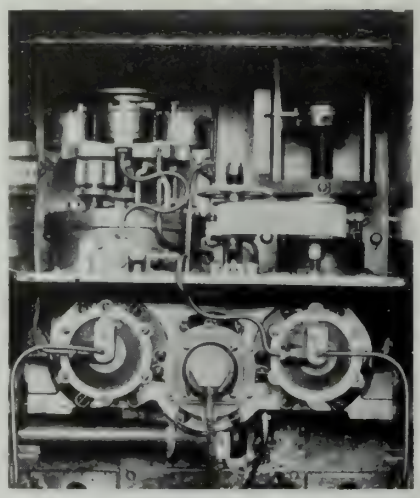
When the gel has become saturated with the refrigerant vapor, SiO_2, it is heated by means of a gas burner and the vapor is driven out of the gel, passing to the condenser where it is liquefied and returned to the evaporator by a float valve. There are two sections to the adsorber, and by heating these alternately continuous refrigeration is produced. Both sections of the adsorber are placed in one end of the car occupying the amount of space now used for one ice bunker in the ice-box type car. The relative compactness of the Silica Gel apparatus permits increasing the loading capacity about 10 per cent. All safety refrigerator cars are thermostatically controlled. The thermostat is set at whatever temperature is desired, and when the temperature in the car rises above the thermostat setting, gas is permitted to flow to the timing device, and operation is started.

Another feature of importance is that the evaporator or cooling pipes are placed above the lading, extending the entire length of the car; cooling is not dependent on the longitudinal circulation of air and the height of the load thus may be materially increased. This overhead installation also insures a uniform temperature throughout the car.

The fuel tanks with which the car is equipped have storage capacity for sufficient fuel to maintain operation for seven or eight days during the extremely warm periods in summer, and ten to twelve days with moderate outside temperatures. From eight to ten hours are required to precool cars to the desired temperature before loading.

The first refrigerator car to be equipped with the Silica Gel unit was sent to Florida on its maiden trip to bring back a cargo of citrus fruit. Despite the fact that this fruit was not precooled before loading the cargo was delivered in New York with its inside temperature not varying over two points from 45° in any part of the car. The equipment withstood all the strains imposed by the shocks of railroad service and the automatic control functioned 100 per cent with no adjustments en route.

The second trip of this car was from Buffalo to Wichita, Kan., with a cargo of chilled meat. The variation in temperature of the meat when the car was opened at Wichita was represented by a minimum of 33° F. and a maximum of 42°. The car was then shipped to Ordway, Colo., where it was loaded with 960 crates of Rocky Ford cantaloupes, the



The Automatic Thermostat Control Showing Temperature Recording Device.

melons being at ordinary normal temperature. The car was opened in New York six days later and the fruit was found to be in perfect condition, having an average temperature of 38° F. which means that the regularly stipulated requirements of fruit shippers were complied with precisely. Like all previous trips of this car, no adjustments to the equipment were necessary en route. The uniformity of temperature throughout the car was noticeable in every test.

The first year of operation ended June 30. During the twelve months approximately 11,000,000 pounds of perishables of all kinds, including frozen fillets of haddock (packed in cartons), fresh beef, fresh pork products, various kinds of packing house products, frozen eggs, fresh fruits and vegetables and some dairy products were transported in this equipment.

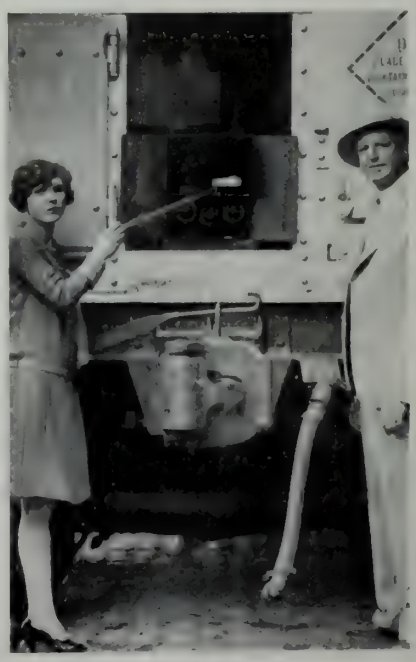
Over a million pounds of the foregoing products covered items other than frozen fish. The approximate value of the food products mentioned is more than $3,000,000 with not a single failure and no claims made for improper refrigeration nor for any other cause.

The company is now about to add 50 Silica Gel iceless cars to its equipment which should be ready for service sometime in September or early in October. These cars will be of the latest type and design and will be a combination refrigerator, ventilator and heater, so that the temperature desired inside of the car may be maintained automatically regardless of weather conditions. The company is experimenting with refrigerator motor trucks using the same process. Two of these have been giving excellent results.

The Lackawanna Limited

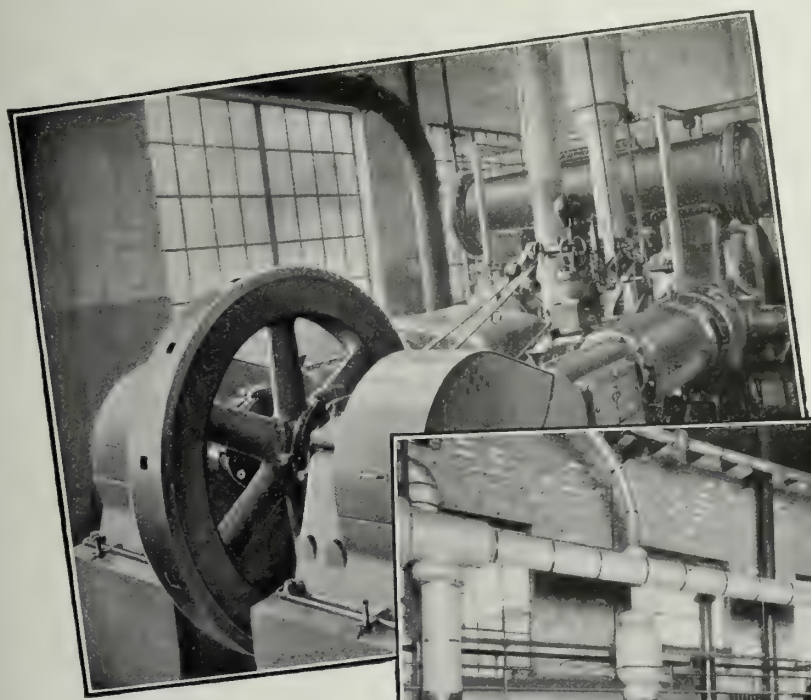
On the cover this month the Lackawanna Limited is shown, between New York and Buffalo, west bound, just after clearing the Bergen tunnel between Hoboken and Newark. The train is pulled by one of the 4-8-4 Pocono Mountain type locomotives. The photograph is the property of the Delaware, Lackawanna & Western R. R. Co.

The balanced man is he who clings to the best in the old and appropriates the desirable in the new.—*Richard Steele.*

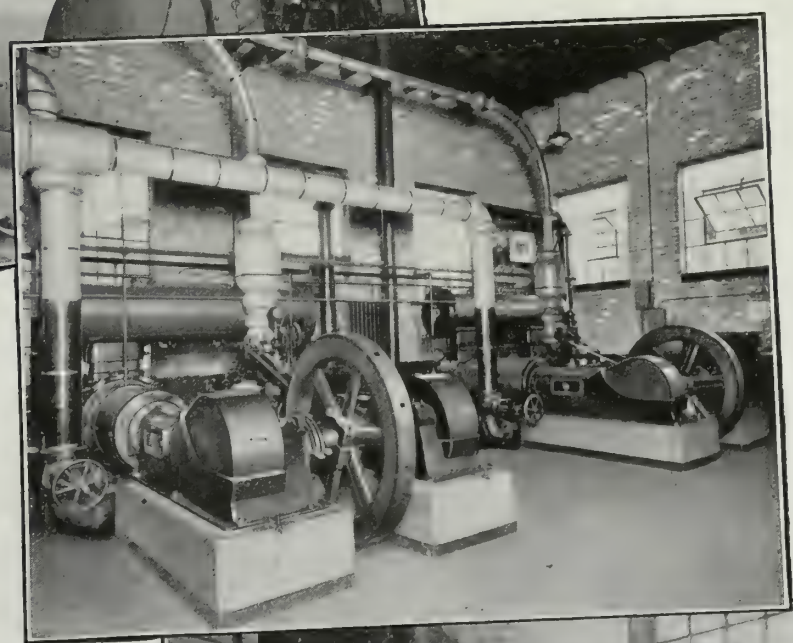


Recording Tape on Which Temperature of Car Is Automatically Recorded Throughout the Entire Trip.

CP COMPRESSORS Recently Installed By Three Large Railroads



These installations are repeat orders from three prominent railroads whose experience with CP Compressors has proved their reliability and high sustained efficiency.



The Simplate Air Valve; the piston type of steam valve; efficient regulation of both the steam and motor-driven types; sturdy construction; reliable automatic lubrication and world-wide CP service facilities are some of the reasons why CP Compressors are preferred by railroad engineers.

There is a CP Compressor, stationary or portable, in steam, oil, belt or direct motor driven type, for every compressed air purpose. Write for literature.

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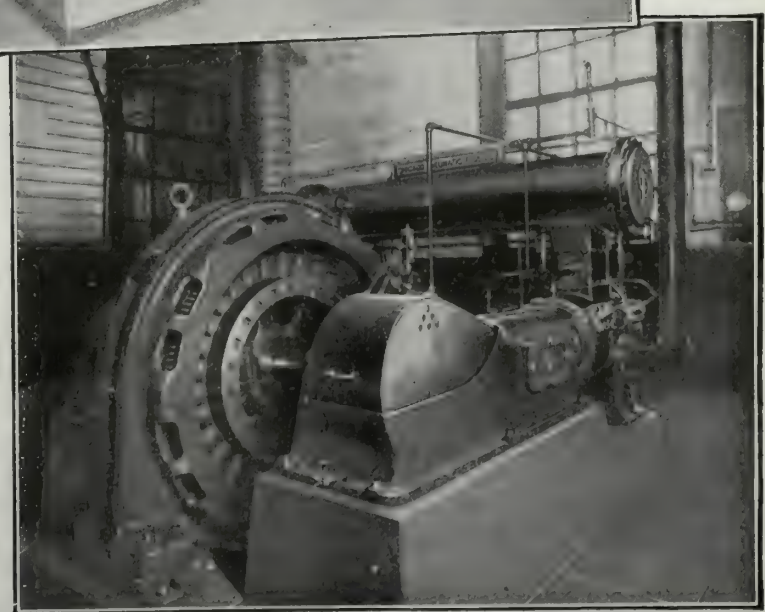
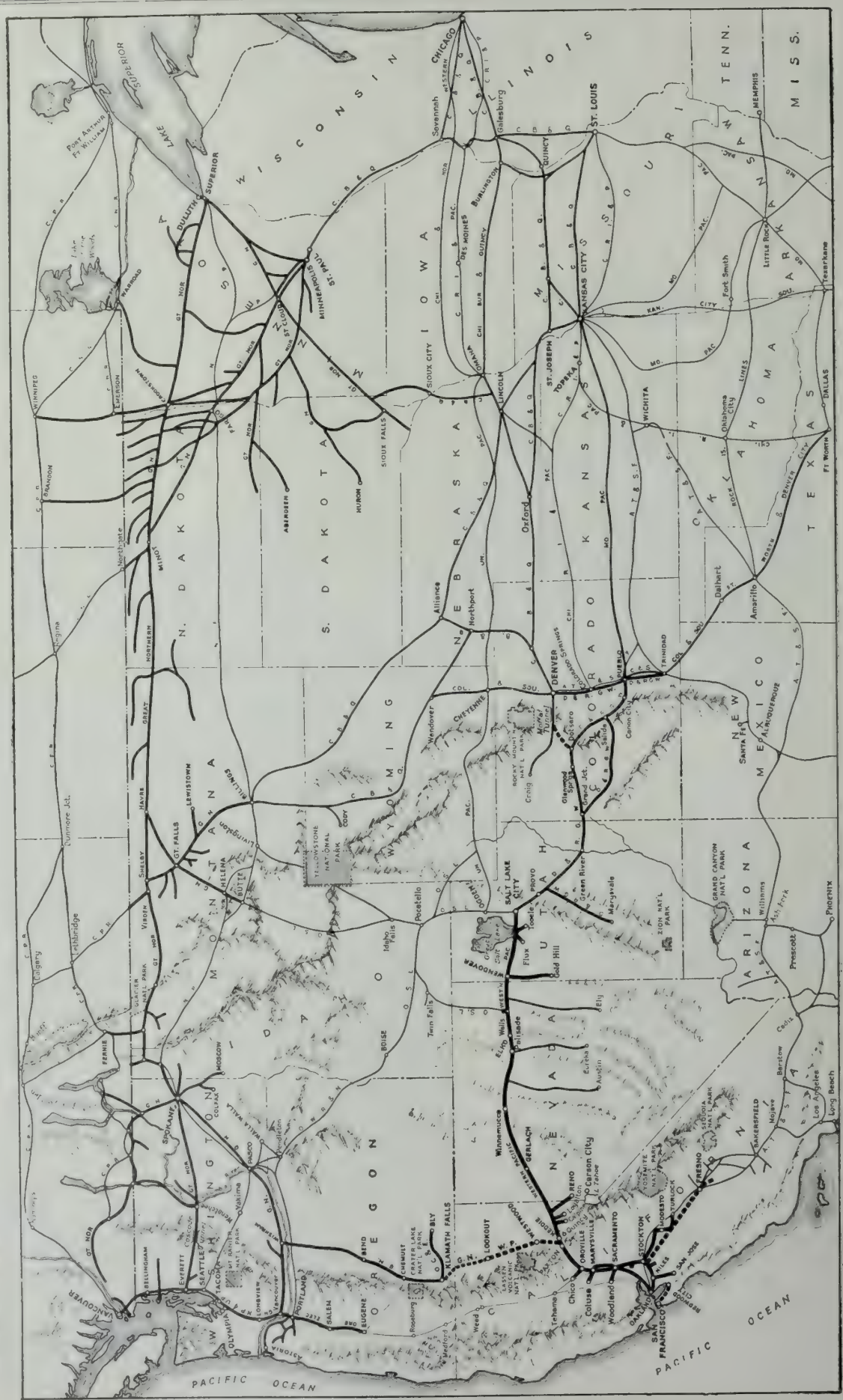


New Through Competitive Railroad Routes Via Proposed California Connection of the Western Pacific and Great Northern Lines



Thousands of shuffling feet daily test this light weight car flooring*

THE heaviest passenger traffic in the world—the wear and weight of the crowds that daily travel in the subways of New York and Boston—could be safely supported by Johns-Manville Truss Plate Car Flooring.

Greater Strength — Lighter Weight — Longer Life

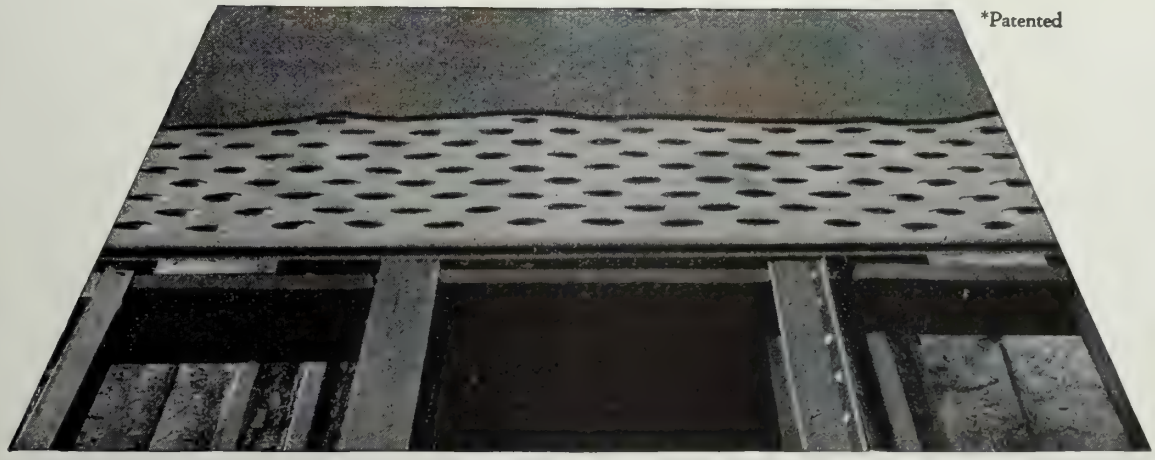
Johns-Manville Car Flooring not only meets the severest passenger car requirements, but reduces the weight of steel car flooring about 25%. Figured conservatively, this means a saving of 1000 lbs. on the average car floor weighing about 5000 lbs. The power saved in hauling this unnecessary dead weight will actually pay for the floor in a very few years.

Although lighter in weight than any other car flooring, J-M Car Flooring contains almost twice as much steel and has 4 times the bracing stiffness of any other car floor construction. J-M Car Flooring consists of "Truss Plate," a *copper-bearing* steel sub-flooring and Masticoke, a wearing surface with an asphalt base.

J-M Car Flooring can be installed at a cost no greater than other types. It is both fireproof and water-proof and has high insulating efficiency.

Every car builder and every railroad official concerned with keeping down his costs on passenger rolling stock should have a copy of our booklet which gives the complete story of J-M Car Flooring. The coupon will bring it to you promptly.

*Patented



"Truss Plate" is made of two sheets of 22 U.S.S. gauge, *copper-bearing* steel which are braced against each other in parallel planes through the medium of staggered rows of oval cones pressed into the sheet. This construction forms a continuous series of trusses which provide the greatest mechanical strength with the least weight. "Truss Plate" may be applied to any car construction either directly or over the steel floor plate, or, where this plate is eliminated, can be secured directly to the center, side and transverse sills.

The Masticoke wearing surface of this J-M Car Flooring is of asphalt composition, light in weight, durable, easy to apply and repair. Due to its tough, resilient structure, Masticoke will not crack nor split under impact, nor will vibration or car-weave affect it. Masticoke has a *non-skid* surface, is sanitary and odorless and is furnished in dark gray and six attractive colors.

Masticoke is being applied over hundreds of old wood floors in traction cars and buses

JOHNS-MANVILLE CORPORATION
New York, Chicago, Cleveland, San Francisco, Toronto
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Please send me your free booklet "Reducing the weight of car flooring."

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Johns-Manville
SERVICE TO RAILROADS

The News of the Month

What's Been Going on in Transportation, Railroads, Automotive, Supply, Aviation

This Is the 4113 in the Frisco's Endurance Test Between Kansas City and Birmingham

THE HEAVIEST freight traffic American railroads ever have handled in any similar period has been recorded thus far in 1929. This fact was reported by M. J. Gormley, chairman of the A. R. A., car service division in a meeting of the directors July 25 at Atlantic City. The indications are, Mr. Gormley said, that the heavy volume will continue although not quite in record proportions for the remainder of the year. The car supply, he said, is considered ample for all demands.

Actual loading of revenue freight for the first 27 weeks this year was 26,505,770 cars, an increase of 1,193,050 cars or 4.7 per cent above the same period in 1928. Actual loading of revenue freight for the first 27 weeks in 1929 was an increase of 359,743 cars above the estimate for that period made last spring by the car service division which at the same time estimated that total loading for 1929 would be 52,553,813 cars, compared with 51,576,731 cars, actual loading in 1928.

With the exception of grain and grain products, livestock and forest products, there has been an increase in the loading of all other commodities in the 27 weeks this year compared with the corresponding period last year

A Locomotive Endurance Test

The Frisco railroad's record-breaking endurance locomotive, No. 4113, completed its fourth round trip between Kansas City and Birmingham in regular freight train service, when it arrived in Kansas City August 8. For 482 hours, during which the locomotive traveled 5925 miles pulling heavy freight trains, a constant fire was maintained under the boiler, and no shop work or overhauling was performed.

The 4113 left Kansas City at 7 o'clock p.m., August 8 for its fifth round trip, pulling a fast train of meat and merchandise from the Kansas City market to southern points.

D. L. Forsythe, general road foreman of equipment for the Frisco, who has ridden the locomotive every mile of its long journey, says it is in first class condition and capable of many more miles. It is understood, however, that the endurance run will be stopped at Kansas City at the conclusion of the fifth round trip August 13, when the engine will have completed 7,350 miles of continuous service.

The previous endurance record of 3,500 miles held by a Great Northern locomotive, will have been more than doubled when the Frisco's 4113 completes its fifth round trip.

Business Down in Chili

The buildings occupied at present by the Chilean State Railways in Valparaiso are to be replaced by modern construction in accordance with the general program of public works, states a report from Vice Consul John T. Garvin, Valparaiso, made public by the United States department of commerce. These improvements involve an expenditure of approximately 11,000,000 pesos ($1,340,000) and it is estimated that about one-half of this amount is being spent in the purchase in the United States of new steel rails to replace old tracks. The purchase and laying of the steel is being done by the State Railways.

Plans and specifications are being prepared by the divisions of operations of the Chilean State Railways in Santiago for the other buildings in Valparaiso which are contemplated in the general plan which embraces the following: Passenger station and offices, terminal passenger station, freight warehouse, machine and car sheds. Public tenders will be called early in 1930 for the construction of these buildings.

Inter-car Telephones on the S. P.

The Southern Pacific has announced the installation of inter-car telephones on "The Cascade," its fast train between San Francisco and Portland. A telephone instrument will be placed in each Pullman car in the train and connections will run to the diner, club and observation cars. With the inter-car communication lines it will be possible for passengers to send and receive messages from any part of the train, thus saving many steps. For instance, passengers may use the telephone to order meals from the diner; inquire if seats are available at the time they wish to have their meals; have refreshments sent to them from the club car, see if the barber is busy, call the maid, or summon train attendants and officials.

Air-Rail to the Southwest

You can go from Chicago to Oklahoma and Texas now part rail, part airship. The Illinois Central and the Southwest Air Fast Express provide the service. It started August 1 with single through tickets on sale. The railroad is used for the first lap leaving Chicago at 11:55 p.m. and arriving at St. Louis at 7:28 a.m. There the plane is taken for a flight to Dallas arriving at 4:30 p.m.

G. N. Would Build in Montana

Another step toward realization of James J. Hill's plan for a subsidiary Great Northern cross-state rail line in eastern Montana has been taken by the filing of an application with the Interstate Commerce Commission for permission to build an extension west from Richey, Mont., to near Hamblin, Mont.

FOR RAILWAY OFFICIALS!

In your judgment, do not operating efficiency, economic advantages and modern railway practice truly require automatic connecting of train lines just as surely as other automatic operations are required in railroading?

20 years of intelligent development through cooperation of railway mechanical engineers have produced in the Robinson Automatic Connector of today, a device of real merit and money earning power for American railways.

ROBINSON AUTOMATIC CONNECTOR

415 Lexington Avenue
New York

"Building Automatic Connectors is our exclusive business"

The Great Northern proposes to build 32 miles of line in Dawson and McCone counties, at a cost estimated at $850,000. This is on the line of J. J. Hill's survey years ago for the so-called New Rockford cut-off, to run from New Rockford, N. D., across eastern Montana to Lewiston and Great Falls. Subsequently the Great Northern built along this survey from Watford City, N. D., to Richey, Mont., and the extension now proposed westward from Richey will carry the line along in the direction of Lewiston.

The Richey extension is in the same general territory as the Northern Pacific's proposed extension from Woodrow to Bloomfield, in the Redwater Valley district. Application for permission to build the Northern Pacific line was filed a few weeks ago. G. R. Martin, executive vice president of the Great Northern, said that there is no conflict in the two proposed extensions. The Great Northern plans to make no objection to the Northern Pacific project unless its own plan meets opposition, it is understood. The Great Northern extension, Mr. Martin said, would open up about 25,000 acres of rich farm land, the development of which has been hindered by lack of railway facilities.

Luhrsen Is Re-elected

J. G. Luhrsen was re-elected president of the American Train Dispatchers Association at the meeting in Chicago, July 22. A. M. Gorman was elected vice president, and C. E. Darling is again secretary-treasurer.

Peppersass to be Repaired

It was a broken pinion tooth and a bent shaft that wrecked the famous old Peppersass on the Mt. Washington, N. H., cog railroad July 20 when it was showing off before visitors. The Boston & Maine says so in a formal statement. The company says there was no explosion and that the old engine will be restored and given to the state as originally intended.

Poor Weather for Speedy Work

A prompt decision by the Interstate Commerce Commission upon the application of the Baltimore & Ohio to acquire control of the Buffalo, Rochester & Pittsburgh was urged in a hearing before the commission by Thomas F. Brennan, vice president of the Buffalo, Rochester & Pittsburgh.

Brennan declared that uncertainty as to the disposition of the railroad was having an adverse effect on its operation and said the management has experienced difficulties, both external and internal.

He added that the road needed improvement and equipment but that he could not determine whether to purchase the equipment because the system which obtained control of the Buffalo, Rochester & Pittsburgh might already have the necessary equipment.

Maybe It Was A Hot Day

Clarence Wright asked the Colorado public utilities commission, one day last week, for permission to operate a truck line from Denver to points along the Rock Island Lines. The application was denied for this reason:

"His general demeanor and attitude as he appeared and testified before the commission convinced the commission that he can not properly and satisfactorily serve the public as a common carrier. Frankly, his conduct indicated an offensive and overbearing attitude to those whose opinion happened to differ with his".

G. M. & N. to New Orleans

I. B. Tigrett, president of the Gulf, Mobile & Northern says negotiations for the purchase of the New Orleans Great Northern by the Gulf, Mobile & Northern are under way. Acquisition of this line, which runs from Jackson, Miss., to New Orleans, would virtually give the G., M. & N. a trunk line from the Ohio River to New Orleans with its present line from Paducah to Mobile, Mr. Tigrett said.

Paid Your Taxes Yet?

Taxes paid by Class 1 railroads in 1928 were the largest in history, reaching a total of $389,432,403, an increase of $509,647 over the previous high record of 1926, according to figures published by the bureau of railway economics. The roads paid $431,030,914 in cash dividends during 1928. Out of every dollar earned 6.4 cents was paid in taxes, 43 cents for labor and 18.2 cents for materials and supplies.

New Law in Wyoming

Attorney General Wilson of Wyoming has informed the Wyoming public service commission that under the new law passed by the last legislature, it must issue a certificate of public convenience and necessity to any applicant, for the operation of motor buses if the applicant is financially responsible. Prior grants will have no right to seek to prevent competition.

Bus Takes Gas Car's Place

The Denver & Rio Grande Western has been using a gasoline car between Malta and Leadville at a loss of about $10,000 a year. It asked the state commission recently for permission to abandon the gasoline car and place in service a motor bus of 12-passenger capacity, stating that it could be operated at a cost of $10 a day, and that it would take care of the traffic. The commission gave its permission for the substitution, with the understanding that if conditions of the road forbid the use of buses, the gasoline car or steam train must be placed in service. It is 10,000 feet above the sea level at Leadville.

Here's a New Railroad

The Denver & Summit Railway Co. has been incorporated under the laws of Colorado by W. C. Johnson, Sr., J. W. Reed and M. P. Zall, its capitalization $3,000,000. Mr. Johnson says that the purpose is to endeavor to take over the Denver-Leadville branch of the Colorado & Southern, and operate it under the name of the Denver & Summit. The Colorado & Southern has publicly stated that it would give this railroad and rolling stock to anyone who can get the approval of the Interstate Commerce Commission. There are, however, certain financial obligations to be met before the property is transferred and this, the new incorporation hopes to surmount.

Missouri-Illinois Buys Road

The Missouri-Illinois has taken over the lines of the Mississippi River & Bonne Terre, extending from Riverside, Mo., to Turpin, with branches from Bonne Terre to Leadwood, from Flat River to Esther, and from Rivermines to Mitchell. The Mississippi River & Bonne Terre ceases to exist as an operating company.

Signal Section at Atlanta

The next meeting of the Signal Section of the A. R. A. will be held at the Atlanta-Biltmore Hotel, Atlanta, on Tuesday, Wednesday and Thursday, September 10, 11 and 12, 1929. H. W. Lewis is chairman, and H. S. Balliet, secretary.

A Bridge Is Found

Fifty seven and a half tons of steel railroad bridge, which did a Houdini disappearing act nearly seven weeks ago, has been found by engineers of the Northern Pacific Railway. The bridge, 10 miles west of Glendive, Mont., spanned a dry creek. June 6, a cloud burst forced a channel 24 feet deep through the course, wrecking it. Northern Pacific crews built a temporary bridge and then it was discovered that one of the spans of the steel bridge, 87 feet long, representing a gross cost of $13,265, had disappeared completely.

The water receded. A mud surface caked the creek bed and it baked and cracked in the sunshine. A few days ago, engineers discovered in the cracks in the mud an outline of the missing steel

June 27th—Terminal completed in 100 working days

February 21st
Ground broken for construction

SPEED RECORD AT DETROIT

The Union Produce Terminal—two buildings over 1000 feet long, 3 miles of concrete platforms, 70,000 square yards of concrete paving, 10 miles of track—built complete in 100 working days!

UNITED ENGINEERS & CONSTRUCTORS, INC
Specialists in the design and construction of
SHOPS
LOCOMOTIVE TERMINALS
PASSENGER TERMINALS
POWER PLANTS
ELECTRIFICATION
PRODUCE TERMINALS
OFFICE BUILDINGS

The new Detroit Union Produce Terminal—described as the finest plant of its kind in the world—now stands complete and ready to serve the produce and transportation interests of Detroit and vicinity.

The new terminal was built in record time—100 working days.

Ground—covered with snow and ice and frozen to a depth of two feet—was broken on February 21st.

The terminal was completed and occupied on June 27th.

The experience of this organization is available for design and rapid construction of freight terminals, refrigerator buildings, shops, locomotive and passenger terminals, power plants and electrification.

UNITED ENGINEERS & CONSTRUCTORS
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NEW YORK PHILADELPHIA NEWARK CHICAGO
LOS ANGELES BUENOS AIRES RIO DE JANEIRO MONTREAL

MAXIMUM RETURN TO CLIENTS PER DOLLAR INVESTED

girder. It was found, right side up and level, 20 inches below the surface of the mud, from which it is being excavated. The near end of this 57½-ton girder was found 230 feet downstream from the track and lies at right angles to the track, having been carried to the opposite bank of the creek.

Polytechnic Oil Engine Course

Systematic instruction is being offered by the Polytechnic Institute of Brooklyn on Diesel and oil engines, in a course dealing with the fundamentals that underlie the use and construction of oil engines.

Twenty two-hour lectures are given during the winter every Tuesday evening at 7:30 beginning with the last Tuesday in September. The lecturers are Julius Kuttner, editor of Oil Engine Power, and Edgar J. Kates, consulting engineer of New York. The laboratory and classroom work will be given by Professors Moore and Carvin of the Polytechnic Institute. An additional feature of the course will be two lectures on laboratory and fuel oils by C. V. Bacon, chemical engineer of New York.

C & O June Net Higher

Gross revenues of the Chesapeake & Ohio for June, 1929, were $10,390,734, an increase of $276,090 over June of last year. Operating expenses were $6,920,-179, an increase of $146,722 as compared with June, 1928; net railway operating income is $3,017,338, an increase of $60,-352 over June of last year. The net income after all charges for June, 1929, was $2,473,569, an increase of $125,736 over June, 1928. The operating ratio is 66.6 per cent compared with 67.0 per cent for June of last year, a decrease of .4 per cent. For the six months ended June 30, 1929, the Chesapeake and Ohio shows gross revenues of $61,983,731, an increase of $2,331,297. Operating expenses were $41,993,339, a decrease of $134,278. Net railway operating income was $16,972,845, an increase of $2,227,-368. Net income after all charges is $13,530,659, an increase of $2,588,281, compared with corresponding period of 1928. The operating ratio for the period is 67.7 per cent, a decrease of 2.9 per cent as compared with same period a year ago.

Railway Construction

Tracks & Yards

CALIFORNIA.—The I. C. C. has denied the Western Pacific permission, through the Sacramento Northern, a subsidiary, to build an extension from a point near the southern end of its Holland line southward 7.8 miles to Ryde.

MISSOURI.—Winston Brothers Co. Minneapolis, and the List Construction Co., Kansas City, have a contract from the Missouri Pacific for second main track between Eureka and Lake Hill, 10.4 miles. The project will cost about $4,350,000 and will include the construction of a cut-off between Eureka and Jedburg, the elimination of three highway grade crossings, and the raising of the new and old main tracks above high water.

MONTANA.—The Great Northern has asked permission to build a 32-mile extension from Richey through Dawson and McCone counties, lying about 25 miles south of the main line.

NEW MEXICO.—The Santa Fe, San Juan & Northern has permission to operate a line from San Ysidro north to Tilden, 33 miles, to build an 11-mile extension north of Cuba and to operate under trackage rights over the Santa Fe Northwestern between San Ysidro and Bernalillo, 23 miles.

OHIO.—The Fairport, Painesville & Eastern has asked permission to build a 13.9-mile extension of its main line from its present terminus near Madison easterly to a connection with the Pennsylvania near Austinburg, rather than a spur or branch track as was planned.

—The Pennsylvania has let a contract to the Stevens Construction Co., Cleveland, for a retaining wall along the east bank of the Mahoning River at Girard to cost $90,000; Ferguson & Edmondson, Pittsburgh, has a contract for drainage improvements at Fairplay and Uhrichsville, $71,000.

—The Pittsburgh, Cincinnati, Chicago & St. Louis, a subsidiary of the Pennsylvania, has permission to build a 1.2-mile extension from Duck Creek to connect with the Baltimore & Ohio at East Norwood so that the Pennsylvania will have an entrance to the new Cincinnati Union Terminal. The cost is estimated at $1,-029,730.

—The Baltimore & Ohio has let a contract to the Vang Construction Co., Cumberland, Md., for grading work on its lines at Loveland, at an estimated cost of $100,000.

PENNSYLVANIA.—The Pittsburgh & West Virginia has asked for permission to build a 5.77-mile extension from Pigeon Creek Crossing on its Connellsville extension, now under construction, to Baird.

TEXAS.—The Texas & Pacific, it is reported, will ask permission to build a 38-mile extension of the Abilene & Southern from Ballinger to San Angelo, and to reconstruct the line between Abilene and Ballinger, 54 miles. The cost is estimated at $1,500,000.

VIRGINIA.—The Richmond, Fredericksburg & Potomac will extend seven tracks in the southbound receiving yards at Potomac Yard, which will necessitate the relocation of other tracks and the extension of a 24-ft. arch culvert.

Buildings & Structures

ARKANSAS. — Little Rock. The Missouri Pacific has purchased land between Commerce and Rector sts. and Fourth st. and Capitol ave. for a $1,000,000 freight station and facilities.

CALIFORNIA. — Los Angeles. The Union Terminals, Inc., has asked the I. C. C. to issue an order requiring the construction of a union terminal station on the Plaza site here. The plan is to build a terminal to be leased to the steam railroads entering the city. The commission is asked to defer action on the request until the United States Supreme Court decides the case in which the city is seeking to compel the commission to issue an order requiring the construction of a union station here. The company proposes an authorized capital stock of $5,000,000 and an authorized bond issue of $29,000,-000.

CANADA.—Hamilton, Ont. The Railway Engineering Equipment Co., Chicago, has a contract from the Toronto, Hamilton & Buffalo for a direct steaming system in its enginehouses.

—Toronto, Ont. The Canadian Pacific has let a contract to the F. W. Miller Heating Co., Chicago, for a boiler washing system and a direct steaming system for the new 32-stall enginehouse on John st. The steaming equipment was designed by the Railway Engineering Equipment Co., Chicago.

COLORADO.—Ordway. The Missouri Pacific has let a contract to Arthur & Allen, Pueblo, for an ice house and dock here to cost $50,000.

INDIANA.—Gary. The Pennsylvania is planning a new passenger station here to cost about $75,000, and to be 80 by 41 ft.

IOWA.—Council Bluffs. The Roberts & Schaefer Co. has a contract from the Chicago & North Western for an "N. & W." type multiple track electric cinder plant.

MASSACHUSETTS. — Boston. The Roberts & Schaefer Co., has a con-

Air Transportation grows up

Above: The large scene shows passengers boarding the Keystone Patrician at the Newark Airport at the start of the daily flight to Boston on the Colonial Line.

Below: The small scene shows the capacious, beautifully appointed cabin of the Patrician.

THERE is a wise saying, "Never send a boy to do a man's job." Transporting fifteen to twenty persons on a long flight twice daily, is a he-man's job for any tri-motor. It is a job to which Colonial Air Transport, Inc. has put the Keystone PATRICIAN for the round trip between New York and Boston—205 miles each way.

At normal cruising speed and without effort, the great Keystone air liner has surpassed the best time made for the trip by other tri-motors . . . delighting Colonial patrons with its smooth, steady flight and the cheerfulness and comfort of its noise-proofed, roomy cabin.

With thirty thousand miles of airways now in operation in the United States, competent authorities agree that greater comfort for the passenger and lower rates will assure the increased use of air travel by the public. These two requirements will be fully met by the use of airplanes having the very qualities in which the Patrician today excels. Rugged construction, proven ability to sustain flight on any two engines, remarkable ease of control, give the Patrician exceptional air-worthiness. The unequalled capacity of the Patrician as a carrier results in the low over-all operating cost of 7 cents per passenger per mile.

Great air lines will achieve success with the Keystone Patrician.

KEYSTONE AIRCRAFT CORPORATION
SALES OFFICES: 31st STREET & EAST RIVER, NEW YORK
PLANTS: BRISTOL, PENNA., AND NEW YORK CITY

Distributors: NEW YORK, Cox & Stevens Aviation Corp.; BOSTON, East Coast Aircraft Sales Corp.; PHILADELPHIA, Ludington Philadelphia Flying Service; CLEVELAND-DETROIT, Thompson Aeronautical Corp.; PITTSBURGH, Pittsburgh Aircraft Agency Corp.; CHICAGO, Continental Air Services, Inc.; LOS ANGELES, W. E. Thomas; SEATTLE, Gorst Air Transport, Inc.; MONROE, LA., Delta Air Service, Inc.

KEYSTONE

"THE KEYSTONE OF SAFE FLYING"

tract from the Boston & Maine for a 2000-ton capacity, 6-track simplex automatic electric reinforced concrete locomotive coaling and sanding plant with duplicate 150-ton automatic ball-bearing roller skips for hoisting the coal.

—Worcester. The Boston & Maine has let a contract to the Roberts & Schaefer Co., for a 500-ton capacity 3-track RandS shallow pit automatic electric reinforced concrete locomotive coaling and sanding plant.

NEBRASKA.—Omaha. The Rock Island has completed plans for a freight station at Mason and Pier sts. It is to have a two-story section, 32 by 120 ft. and a covered platform 32 by 160 ft.

NEW YORK.—New York. A final contract was signed July 5 between representatives of the New York Central and the city of New York in regard to carrying out the $175,000,000 West Side improvement plan in Manhattan. All grade crossings on the island from St. John Park to Spuyten Duyvil are to be eliminated, tracks are to be removed from Eleventh st. and Riverside Park is to be beautified.

—South Brooklyn. The Lackawanna has let a contract to the Turner Construction Co., New York, for a new coal trestle and yard at Twenty-fifth st.

PENNSYLVANIA.—Pittsburgh. The Pennsylvania has let a contract to W. F. Trimble & Sons Co., Pittsburgh, for inbound and outbound freight houses and platforms about foundations at Eleventh and Etna sts. at a cost of $700,000.

—The Rust Engineering Co., Pittsburgh, has a contract for dismantling and disposing of present overhead bridges and the erection of new bridges on its lines at North and Irwin avenues.

TEXAS.—Houston. The Southern Pacific and the Houston city council have entered into an agreement for the building of a passenger terminal between Washington ave. and Kessler st. and between Milan and Elder sts. The project, including track changes and the building of mail and express buildings, is expected to cost $7,000,000. Two alternate contracts have been decided upon. Under the terms of the first the station will be in Washington ave. and land will be purchased to provide a new route for the avenue in front of the station. Under the second contract the station will be placed alongside Washington ave., if the plans under the first contract do not seem feasible. Highway subways under Southern Pacific tracks on Milan st. and Houston ave. will be constructed jointly by the road and the city.

WEST VIRGINIA. — Hinton. The Chesapeake & Ohio has let a contract to the John W. Cowper Co., Richmond, for the rearrangement and enlargement of the engine terminal here at an approximate cost of $265,000. Seven stalls of the present enginehouse will be extended. A new 800-ton capacity concrete coaling station, two concrete inspection pits and two engine washing platforms, cinder conveyors and a coal conveyor will be built. Several buildings, including a foreman's office, engine supply building, ice house, arch brick storage building and sand house, will be built. All buildings except the arch brick storage building and the sand house will be of concrete and brick. These two will be of steel.

WISCONSIN.—Irvine. The Roberts & Schaefer Co. has a contract from the Soo Line for a 125-ton automatic electric locomotive coaling plant and an "N. & W." type electric cinder plant.

Locomotive Orders

According to an announcement made by the car service division of the A. R. A., Class I railroads on July 1, this year, owned 57,912 locomotives. This was a reduction of 7,012 compared with the number on July 1, 1924. Compared with July 1, last year, this was a reduction of 2,182. With the decline in the number of units owned, there has been a steady increase in the tractive power of the new locomotives installed by the railroads with the result that the average tractive power per locomotive is now 43,985 pounds compared with 38,217 pounds seven years ago. From January 1, 1923 to July 1, 1929, 14,079 new locomotives were placed in service, all of which have been of improved types.

On July 1, 1923, the railroads had 11,450 locomotives, or 18 per cent of the number on line, in need of repair. Since that time there has been a steady improvement with the result that on July 1, this year, fewer locomotives were in need of repair than at any time in recent years, there having been only 7,453 or 13 per cent of the number on line.

Locomotives in need of repair July 15 totaled 8,225 or 14.3 per cent of the number on line, 7.7 per cent in need of classified repairs and 6.6 per cent in need of running repairs. Serviceable locomotives in storage July 15 totaled 5,414 compared with 5,411 on July 1.

The builders had unfilled orders for 539 locomotives on July 31. This is an increase of 341 over the same date in 1928 when unfilled orders totaled only 198. In 1928, however, the figures included 59 electric engines and in 1929 only 18. The increase in unfilled orders for steam locomotives only amounts to 500 per cent. July shipments totaled 69, as compared with 78 in June and 46 in July, 1928.

The Baldwin Company received the following orders: Wabash, 25 4-8-2 type; Northern Pacific, 11 2-8-8-4 type; Bessemer & Lake Erie, one 2-10-4 type; Chilean State Rys., 12 4-8-2 type; Cearense Railroad of Brazil, three 2-8-2 type; Campbell River Timber Co., one; Patapsco & Back Rivers, two; Cerro do Pasco Copper Co., five small electrics; New Inda Quick Silver Mines, one small electric; Northern Indiana Public Service Co., one large electric. Lima received an order from the Texas & Pacific for 15 2-10-4 type locomotives. Westinghouse received orders from the Ander Copper Mining Co., for two 10-ton trolley type and one 15-ton storage battery locomotive; United Verde Copper Co., four storage battery locomotives.

The New York Central is inquiring for 35 oil-electric battery locomotives; Paracatu Ry., one 4-6-0 type, one 4-6-2 type and one 2-6-2 type; Rio Grande Do Sul, Brazil, ten 2-10-4 type; Sierra Railway of Calif., one 2-8-2 type; Texas & Pacific, five 4-8-2 type. It is reported that the Burlington is contemplating 25 locomotives; Detroit & Toledo Shore Line, six Mikados; Nashville, Chattanooga & St. Louis, five locomotives.

The Northern Pacific order is for Yellowstone type engines which are duplicates of the one put in service in March as an experiment between Glendive, Mont., and Mandan, N. D., a 216-mile stretch, where there is an undulating grade line, with controlling grades of one per cent so separated over the territory that it has been impracticable to establish helper or pusher districts. Until this type locomotive was placed in service, it was necessary to handle in two trains the tonnage that was handled in one train both west of Glendive and east of Mandan. Each of the new locomotives will be 125 feet long, overall. They will burn semi-bituminous coal, which is obtained from an open-pit mine in southeastern Montana. In working order, with coal and water, they will weigh 1,116,000 pounds.

Passenger Car Orders

Orders for passenger cars placed since the July issue of Transportation include the following: Chicago Great Western, two baggage and mail cars with Pullman; Great Northern, two diners with Pullman; New York Central, 75 express refrigerators with Merchants Dispatch; Minneapolis & St. Louis, three gas-electric motor cars with St. Louis Car, and Electro-Motive; Lynchburg Traction & Light Co., 20 double-end, double truck units with J. G. Brill; Toronto Transportation Commission, 55 street cars and 55 trailers with National Steel Car.

The Board of Transportation, New York, is inquiring for 300 steel passen-

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ger cars; Brooklyn & Queens Transit Corpn., 100 cars, and the Rio Grande Do Sul, Brazil, 21 cars. The Cleveland Railway has been authorized to purchase 100 street cars.

Freight Car Orders

According to an announcement made by the car service division of the A. R. A., freight car ownership of the Class I railroads, on July 1, this year, excluding railroad controlled private refrigerator cars totaled 2,266,069, a reduction of 98,603 cars under the greatest number ever owned in any one year, which was in September 1925. Compared with July 1, 1928, the total ownership of Class I roads on July 1 this year was a decrease of 34,600. Between January 1, 1923, and July 1, 1929, the Class I roads installed 751,723 new freight cars. These have been largely of steel construction with increased carrying capacity compared with the older type of cars and their installation has enabled the railroads to retire much obsolete equipment, which not only was expensive to maintain, but also had a smaller carrying capacity.

Class I railroads, on July 15, had 145,411 freight cars in need of repair or 6.5 per cent of the number on line, 4.5 per cent in need of heavy repairs and 2 per cent in need of light repairs. This was an increase of 3,347 cars above the number reported on July 1, at which time there were 142,064 or 6.4 per cent.

The Milwaukee is inquiring for 1000 gondolas; Ann Arbor, 100 hopper bodies; Bessemer & Lake Erie, 25 gondolas; Chicago & Eastern Illinois, 10 automobile; Great Northern, 300 flats and 300 underframes; New Haven, 75 coke bodies; Newfoundland Railway, 20 gondolas; Rio Grande Do Sul, Brazil, 80 steel underframe, single sheathed box and 50 steel ballast cars; Spokane, Portland & Seattle, five caboose; Wabash, 100 steel hopper bodies; Pacific Fruit Express, 400 refrigerator cars. The Texas Company is inquiring for 18 gondolas.

The Canadian Pacific ordered 100 ore cars from the Canadian Car & Fdy.; Milwaukee, 15 caboose from the Bettendorf Co.; General Chemical Co., 36 tank cars from American Car & Fdy.; Hercules Cement Co., 10 cement cars from Standard Steel Car; Inspiration Consolidated Copper Co., four air dumps from Western Wheeled Scraper; International Harvester, 13 hoppers from Pressed Steel; National Railways of Mexico, 600 box from Pullman Car & Mfg.; John A. Roeblings Sons Co., 10 gondolas from American Car & Fdy; Warren Tank Car Co., five tank cars from Standard Steel Car.

Bus Orders

Recent bus orders include the following: Alabama Power Co., three White Model 50Bs; Atlantic & Pacific Stages, six Macks; Atlantic Stages Inc., of Philadelphia, two 29-passenger Macks; Austin Street Ry., Austin, Texas, one 21-passenger Studebaker; Baltimore Coach Co., five 27-passenger A. C. F. and three 21-passenger A. C. F. coaches; Boston, Worcester & New York Street Ry., Framingham, Mass., two 29-passenger Macks; Burlington Rapid Transit, Burlington, Vt., five urban Twin coaches; Capital Dist. Transportation Co., seven urban Twin coaches; Capital Traction Co., 11 Twin coaches; Coast Cities Rys., of Asbury Park, N. J., two Type Z-39 Yellows; Department of Street Rys., Detroit, 25 Type Z-29 Yellows; Eastern Massachusetts Street Ry., Boston, seven 21-passenger Studebakers; Fifth Avenue Coach Co., New York, 11 Yellows; Fitchburg & Leominster Street Ry., two 21-passenger Studebakers; Illinois Power & Light, 10 Type W Yellows; Indianapolis Southeastern RR., four 22-passenger Studebakers; Interstate Transit Inc., of Cincinnati, 12 29-passenger Macks; K. L. W. M. Inc., Albany, four Twin coaches; London Street Ry., London, Ont., five Type W Yellow city buses; Milwaukee Electric Ry. & Light, two urban Twin coaches; Motor Transit Corpn., Chicago, three 29-passenger A. C. F.'s; New Orleans Public Service, one 42-passenger Twin Coach trackless trolley; Pacific Electric Co., 10 Twin coaches; Penn-Ohio System, Youngstown, six White Model 54s; Philadelphia & West Chester Ry., three Twin coaches; Rochester Ry. Co-Ordinated Bus Line, Inc., 10 White Model 54As; Savannah Electric & Power Co., two urban Twin coaches; Suburban Transportation Co., Seattle, one suburban Twin Coach; Syracuse Ry. Co-Ordinated Bus Line, one Mack chassis; United Electric Rys., Providence, 14 White Model 54s; Utah Light & Traction, Salt Lake City, 11 Twin Coach trackless trolleys.

Changes in Personnel

Executive & Operating

William G. Black, mechanical assistant to the president of the Erie, has been appointed mechanical assistant to the president of the Chesapeake & Ohio, with headquarters at Cleveland. **Richard Brooke,** assistant engineer, maintenance of way, at Richmond, has been appointed engineering assistant to the president, with headquarters at Cleveland.

E. E. Crabtree, assistant to the president of the Chicago, Springfield & St. Louis, has been elected vice president, with headquarters as before at Jacksonville, Ill. **H. J. Hadden,** assistant to the general manager at Springfield, has been appointed general manager, with the same headquarters.

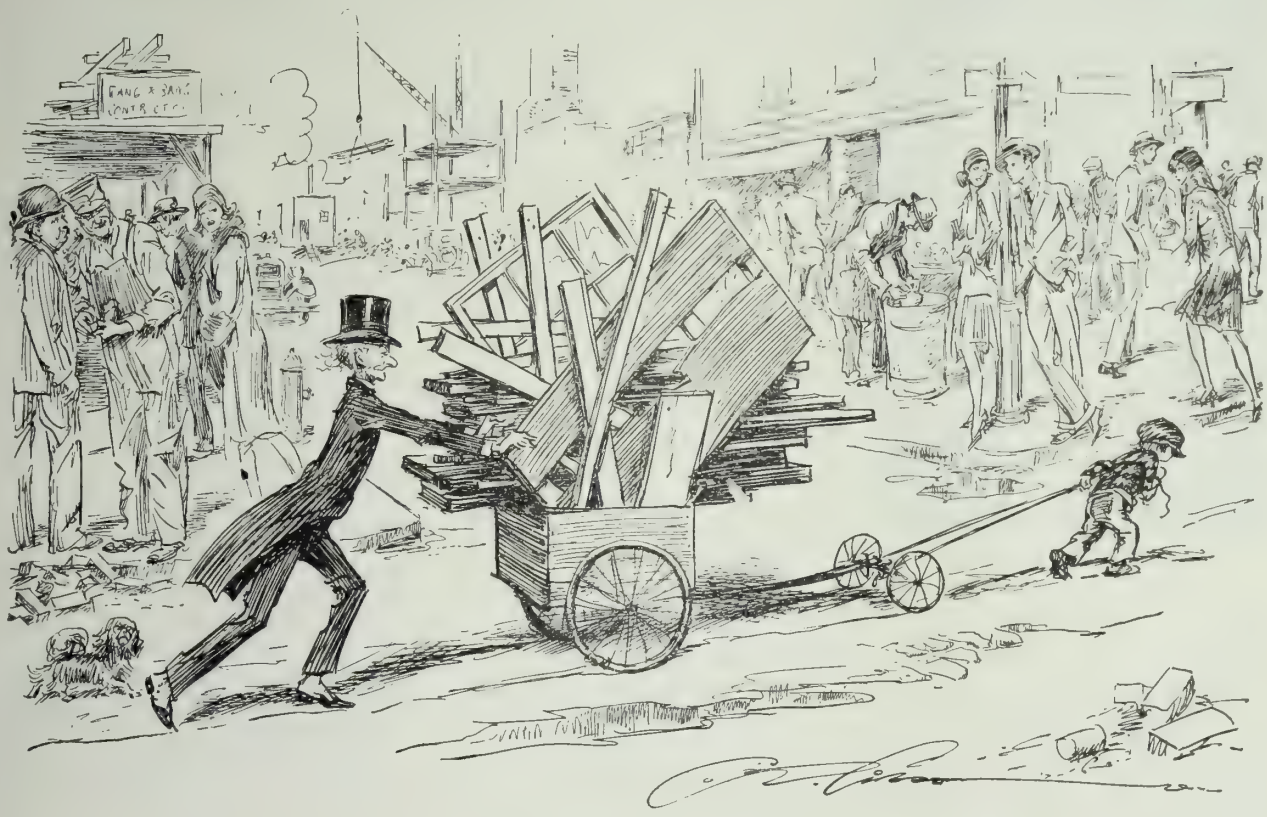
F. J. Gavin, assistant general manager of the Great Northern lines east of Willston, N. D., has been appointed general manager of those lines, with headquarters as before at Duluth, succeeding **F. Bell,** retired.

G. W. Bennett, assistant superintendent of the Buffalo, Rochester & Pittsburgh, has been appointed transportation assistant with headquarters as before at Rochester.

Walter S. Franklin, general superintendent of the northwestern division of the western region of the Pennsylvania at Chicago, has been elected president of the Detroit, Toledo & Ironton, with headquarters at Detroit, succeeding **S. P. Ruddiman.**

A. E. Warren, general manager of the central region of the Canadian National, at Toronto, has been elected vice president in charge of the western region, with headquarters at Winnipeg. **T. A. Hiam** has been appointed assistant to the president, with headquarters at Vancouver. **W. A. Kingsland,** general manager of the western region, succeeds Mr. Warren as general manager of the central region and in turn is succeeded by **A. A. Tisdale,** assistant to the general manager of the western region at Winnipeg. **J. R. Cameron,** assistant general manager of the western region at Vancouver, retired from active service on August 1 and the position of assistant general manager at that point has been abolished. Other appointments are as follows: **T. C. Hudson,** acting general superintendent of the southern Ontario district at Toronto, succeeding **R. H. Fish,** who has been granted leave of absence; **Charles Forrester,** general superintendent of the Saskatchewan district at Saskatoon succeeding **B. T. Chappell,** who has been transferred to the British Columbia district at Vancouver.

T. H. Lantry, general manager of lines east of Paradise, Mont., of the Northern Pacific, with headquarters at St. Paul, has been transferred to Seattle as general manager of lines west of



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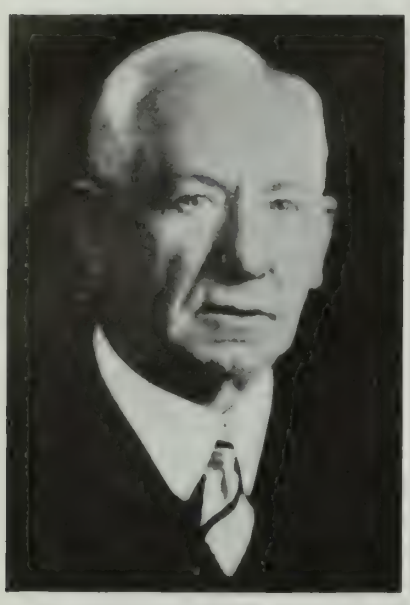


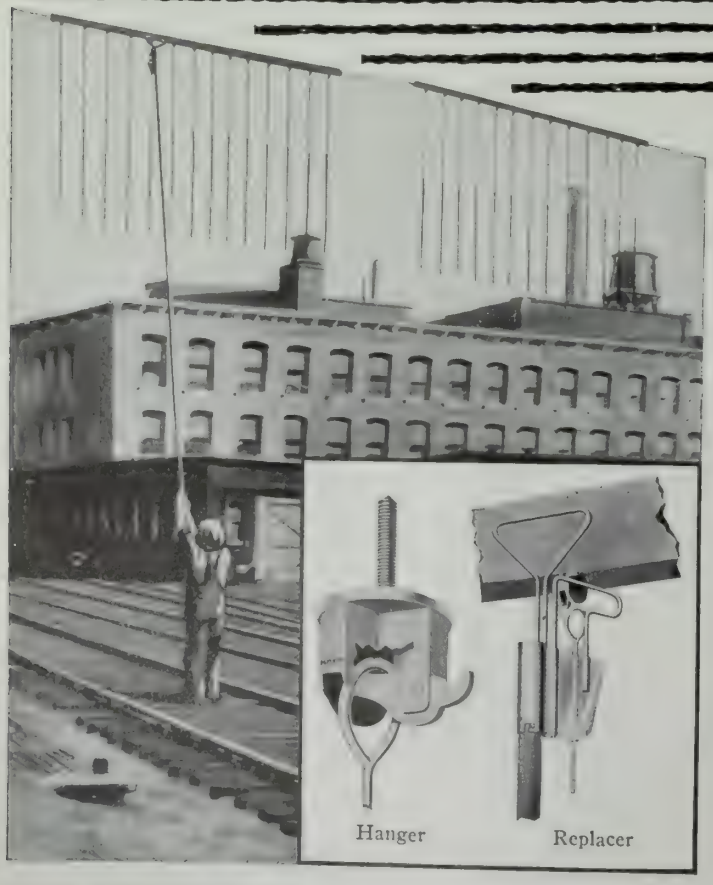
T. H. Lantry

Paradise. **W. C. Sloan,** assistant to the operating vice president, has been appointed general manager of lines east of Paradise to succeed Mr. Lantry. **B. O. Johnson** has been appointed assistant to the operating vice president, with headquarters in St. Paul. Mr. Lantry began with the Northern Pacific as train dispatcher in 1900, having learned telegraphy when he was 13 and held various positions as a telegrapher. He was made trainmaster, division superintendent and, in 1917, assistant to the first vice president at St. Paul. From October of that year until 1920 he served as a lieutenant colonel in the United States Russian Railway service corps, being appointed assistant general manager of the Northern Pacific at St. Paul when he was mustered out of service. Mr. Lantry was appointed general manager in charge of lines east of Paradise, Mont., in 1926, from which position he now is transferred to Seattle to succeed **A. V. Brown**, retired after 45 years of railroad service.

Mr. Sloan, a graduate of Cornell University, joined the Northern Pacific in 1909 in the engineering department after having served in railroad work in the east. During the World War he served as a captain in the army and at the close of the war returned to the Northern Pacific as division superintendent. He was appointed assistant to the operating vice president in 1927.

Mr. Johnson was assistant to the president until the appointment of B. W. Scandrett as vice president, when the position of assistant to the president was abolished. He is a graduate of the Worcester, Mass. Polytechnic Institute and soon after graduation he took his first work in the Northern Pacific as a section laborer at Minneapolis. He entered the operating department in 1902, serving as roadmaster, trainmaster, and superintendent. In the World War he served as major, lieutenant colonel and colonel in the United States Russian Railway service corps, serving in Russia more than 5 years. He was decor-

W. C. Sloan



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ated by the French, Czechoslovakian, Chinese and Japanese governments. He returned to the Northern Pacific in 1923.

E. H. Shaufler, general manager of the Kansas City, Mexico & Orient and the Kansas City, Mexico & Orient of Texas, has been appointed assistant to the general manager of the Santa Fe and the Panhandle & Santa Fe, with headquarters at Wichita, Kan., the office of the general manager of the Orient lines having been abolished August 1. **R. L. Davis,** superintendent of the Orient, has been appointed assistant superintendent of the Panhandle division of the Santa Fe, with headquarters at Wichita. **A. J. Cleary,** superintendent of the Orient in Texas, has been appointed assistant superintendent of the Slaton division of the Panhandle & Santa Fe at San Angelo. The Santa Fe has moved the headquarters of the Rio Grande division from San Marcial, N. M., to Albuquerque. **J. B. Briscoe,** superintendent of the Plains division, at Amarillo, has been appointed acting assistant general manager, with the same headquarters, succeeding **F. L. Myers,** who has been granted a temporary leave of absence owing to ill health. **C. S. Cravens,** superintendent of the Arkansas River division at La Junta, succeeds Mr. Briscoe as acting superintendent of the Plains division and is in turn succeeded by **J. R. Skillen,** trainmaster of the New Mexico division at Las Vegas, N. M.

Frank W. Webster, vice president and general manager of the Peninsular Railway Co., the San Jose Railroads, the Fresno Traction Co., the Stockton Electric Railroad Co. and the Visalia Electric Railroad Co., subsidiaries of the Southern Pacific, has been elected president of these companies, with headquarters as before at San Francisco, succeeding Paul Shoup.

W. H. Lohrey has been appointed superintendent of dining car service of the Kansas City Southern, with headquarters at Kansas City.

W. A. Weed has been elected president of the Indiana Northern succeeding **J. D. Oliver.** Other officers elected at a recent meeting of the board were: **T. A. Freeman,** secretary and treasurer; **R. C. Rolfing,** vice president and traffic manager; **H. F. Shider,** vice president; **L. G. Couter,** assistant secretary. All officers will have headquarters at South Bend.

The Illinois Central announces these appointments: **J. M. Chandler,** superintendent of the Vicksburg division, at Vicksburg, succeeding **J. C. Stamm,** who has retired from active service. **W. M. McKay,** trainmaster on the New Orleans division at Baton Rouge, succeeding Mr. Chandler; **T. D. Beven,** trainmaster of the Memphis division, succeeding Mr. McKay; **N. L. Patterson,** superintendent of dining car service at Chicago.

George H. Burgess has been elected president of the Tennessee, Alabama & Georgia, with headquarters at Chattanooga, succeeding **L. C. Smallwood,** resigned.

C. W. L. Mickley, superintendent of telegraph of the Gulf Coast Lines and the International-Great Northern at Houston, retired from active duty on July 1, aged 70.

O. M. Dawson, roadmaster of the Norfolk & Western at Buena Vista, Va., has been appointed assistant superintendent of the Shenandoah division at Roanoke.

Andrew L. Horst, assistant to the president of the Cambria & Indiana, has been elected executive vice president, with headquarters as before at Philadelphia. The position of assistant to the president has been abolished.

S. H. Fulkerson has been appointed assistant superintendent of the Mobile and Montgomery division of the Louisville & Nashville, at Montgomery, succeeding **H. E. Starks,** assigned to other duties.

J. A. Anderson, superintendent of the Chicago-Petoskey division of the Pere

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Marquette at Grand Rapids, has been transferred to the Port Huron-Grand Rapids division at Saginaw, to succeed **J. A. Grigware,** who has been transferred to the Chicago-Petoskey division.

Financial & Legal

The Southern Pacific announces that **W. H. Kirkbride,** engineer of maintenance of way and structures of the Pacific lines at San Francisco, has been placed also in charge of valuation work on those lines. This follows the transfer of the valuation department to the vice president in charge of operations. **G. E. B. Welles,** valuation officer has been named consulting valuation officer at San Francisco. **J. B. Baker** has been named valuation officer in immediate charge of the valuation department to succeed Mr. Welles.

F. C. Nicodemus, Jr., assistant general counsel of the St. Louis Southwestern at New York, has been appointed general counsel with the same headquarters, succeeding **Winslow S. Pierce.**

W. R. C. Cocke has been appointed general counsel of the Seaboard Air Line at Norfolk, that position having been re-established, effective July 1.

A. Trevvett, secretary and treasurer of the Chesapeake & Ohio and the Hocking Valley has been appointed also secretary and treasurer of the Pere Marquette, with headquarters as before at Cleveland.

E. C. Morris, general auditor of the Pullman Co., has been appointed controller, succeeding **L. S. Taylor,** vice president and controller, who retains the position of vice president. **H. R. Holmgren,** assistant general auditor, succeeds Mr. Morris as general auditor. **M. Bradish,** assistant general auditor, has been appointed assistant controller.

Purchases & Stores

W. E. Wilford, assistant purchasing agent of the Ontario district of the Canadian Pacific at Toronto, has been appointed purchasing agent of that district with the same headquarters. **J. H. Reeder,** assistant district engineer of the Quebec district at Montreal, has been appointed general tie agent, with the same headquarters, succeeding **B. M. Winegar,** who resigned to become assistant to the president of the Canadian Creosoting Co. at Montreal. **F. A. Cousins** has been appointed assistant general tie agent at Montreal.

Montgomery Smith, assistant general purchasing agent of the Pennsylvania at Philadelphia, has retired.

Traffic

The Panhandle & Santa Fe announces the establishment of a division freight and passenger agency at San Angelo, Texas, and these appointments: **W. H. Hargrove,** division freight and passenger agent; **R. H. Forbes,** assistant division freight and passenger agent; **J. D. Neely, W. C. Anglund,** and **J. M. Rutherford,** traveling freight and passenger agents, and **W. J. Tilton,** live stock agent. A

Mark Fenton

division freight and passenger agency has been established at Lubbock, Texas, with **E. Kancher** as division freight and passenger agent and **E. A. Tusha** as traveling freight and passenger agent. A general agency, freight and passenger department, has been established in California, with **Walter Gray** as general agent at Los Angeles and **H. L. Blackstone** as general agent at San Francisco. **J. J. Lane** has been appointed assistant general freight and passenger agent and **H. H. Nye** assistant general freight agent at Amarillo.

W. E. M. Schloeman has been appointed district freight and passenger agent of the Union Pacific at Aberdeen, Wash., to succeed **F. E. Studebaker,** deceased.

The Chicago & North Western has made the following appointments: **D. H. Hoops,** assistant freight traffic manager with headquarters at Chicago; **R. C. Kerr,** manager of the industrial department at Chicago, succeeding **Carl R. Gray, Jr.,** recently appointed general manager of the Omaha; **R. O. Small,** general freight agent, traffic, at Chicago; **S. G. Nethercot,** general freight agent, rates and divisions at Chicago; **M. B. Hutchins,** assistant to the vice president, traffic, at Chicago; **J. E. Flansburg,** assistant to the vice president, rates and divisions, at Chicago; **C. E. Hale,** general agent at Philadelphia, succeeding Mr. Small; **G. L. Helmstadter,** general agent at Cincinnati, succeeding Mr. Hutchins; **Robert J. James,** general baggage agent at Chicago, succeeding **H. G. Graves,** retired.

A. S. Matteson, general freight and passenger agent of the Detroit & Mackinac, at Alpena, Mich., has been appointed traffic manager with the same headquarters.

W. H. D. Snazel has been appointed Canadian freight agent of the New York Central at Toronto, succeeding **J. W. Hickson,** retired. **H. A. Coughenour,** city coal and freight agent at Chicago, has been appointed general agent of the coal and ore department at the same point, succeeding **W. L. Harper,** deceased.

R. W. Reynolds has been appointed commissioner in charge of the agricultural development and colonization department of the Milwaukee, with headquarters at Chicago.

L. I. Hause, perishable traffic representative for the Chicago & Alton at San Francisco, has been appointed general agent at that point.

W. E. Bernthal, special representative of the controller of the Frisco, has been appointed assistant general freight agent at St. Louis.

Donald J. Price, general passenger agent of the International-Great Northern and the San Antonio, Uvalde & Gulf, has retired.

The Illinois Central announces the appointment of **Mark Fenton** to general industrial agent, a new post. Mr. Fenton will cooperate with civic organizations in the territory covered by the Illinois Central lines in connection with programs for industrial development, and will advise and inform industries seeking new sites in the territory. Mr. Fenton's experience includes 27 years with the Illinois Central, chiefly in development work, and ten years as industrial commissioner of local and state chambers of commerce. **H. J. Schwietert,** general development agent, will continue to have charge of agricultural development and colonization activities, while Mr. Fenton will take over the industrial department.

Mechanical

George McCormick, general superintendent of motive power of the Southern Pacific, at San Francisco, has been appointed also general superintendent of motive power of the Northwestern Pacific.

The Great Northern has made the following appointments: **E. English,** general master mechanic with headquarters at Great Falls, Mont.; **J. Dowling,** master mechanic of the Cascade division at Seattle, succeeding Mr. English; **T. J. Clark,** superintendent of motive power, lines west, at Spokane, succeeding Mr. Dowling; **I. G. Pool,** assistant master

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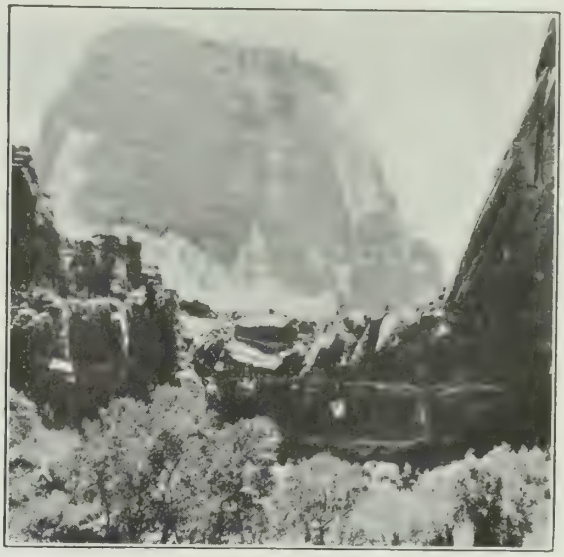

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Over its lines between Chicago and the Pacific Coast centers of Los Angeles, San Francisco, Portland and Seattle—the Union Pacific is now operating the largest fleet of trains serving this vast territory. And throughout transportation circles, this great system is recognized as a standard for high grade maintenance, on-time operation and satisfactory service to the public.

Union Pacific
THE OVERLAND ROUTE

6-1

mechanic of the Montana division at Havre, Mont.

G. W. West, master mechanic of the Conemaugh division of the Pennsylvania at Sharpsburg, Pa., has been appointed master mechanic of the Buffalo division at Olean, N. Y., succeeding **E. L. Bachman**, who has been transferred to Harrisburg, Pa. Mr. West is succeeded at Sharpsburg by **C. O. Shull**, formerly assistant master mechanic in the eastern region at Altoona.

The Northern Pacific announces these appointments: **J. A. Marshall**, master mechanic at Glendive, Mont., succeeding **J. W. Matheson**, retired; **George L. Ernstrom**, master mechanic at Pasco, Wash., succeeding Mr. Marshall; **Luke J. Gallagher**, assistant master mechanic at Staples, succeeding Mr. Ernstrom; **Martin F. Brown**, road foreman at Missoula, Mont., succeeding Mr. Gallagher; **Harry E. Green**, acting road foreman at Northtown, succeeding **C. W. Extrand**, who has been granted leave of absence; **Daniel Sinclair**, fuel supervisor at Seattle, succeeding **M. F. Brown**, transferred; **Frank J. Regan**, fuel supervisor at Livingstone, Mont., succeeding Mr. Sinclair.

W. M. Johnson, assistant foreman at the Nashville shops of the Nashville, Chattanooga & St. Louis, has been appointed master mechanic of the Chattanooga division and the Chattanooga terminal, succeeding **A. J. Law**, deceased.

P. M. Sullivan, traveling engineer of the Duluth, Missabe & Northern, has been appointed master mechanic, with headquarters at Proctor, Minn., succeeding **W. J. Greene**, deceased.

G. R. Wilcox, master mechanic of the Salt Lake division of the Los Angeles & Salt Lake, at Milford, Utah, has been transferred to the Los Angeles division, at Las Vegas, Nev., succeeding **J. E. Morris** who has been transferred to the Salt Lake division.

Fred W. Oakley, master mechanic of the Louisville & Nashville at Ravenna, Ky., has been appointed master mechanic at Corbin, Ky., succeeding **Harry Feather**, deceased.

Civil

H. B. Reinsagen has been appointed assistant chief engineer of the New York Central, lines west of Buffalo, with headquarters at Cleveland. He will continue the work of principal assistant engineer.

W. G. Kemmerer, master carpenter on the Eastern division of the Pennsylvania at Alliance has been appointed assistant engineer in the office of the chief engineer of maintenance of way of the western division at Chicago.

L. J. Drumeller, assistant division engineer of the Russell division of the Chesapeake at Russell, Ky., has been appointed division engineer of the Hinton division at Hinton, W. Va., succeeding **H. L. McCutcheon**, deceased. **J. W. Knapp, Jr.**, succeeds Mr. Drumeller as assistant division engineer at Russell.

William M. Farrell, roadmaster on the Oregon Short Line at Nampa, Idaho, has been appointed general roadmaster of the Idaho division, with headquarters at Pocatello. **Frank Ivers, Jr.**, roadmaster at Pocatello, has been appointed general roadmaster of the Utah division with the same headquarters. These are newly created positions.

Obituary

Armistead K. Baylor, commercial engineer of the General Electric Co. and veteran of the electrical industry died at his summer home at Ipswich, Mass., August 1. Mr. Baylor was 61 years of age.

A. N. Lyon, assistant to the general superintendent of the Ohio Central lines of the New York Central, died at his home in Charleston, W. Va., July 29, following a stroke of paralysis.

Ralph E. Miller, bridge engineer of the Frisco, at St. Louis, died at the Frisco Employes hospital in that city, July 23, aged 51.

James Horsburgh, Jr., retired general

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Railways annually give profitable employment to one and three-quarter millions of employes, who receive nearly three billions of dollars in wages. Railways also indirectly furnish employment to many hundreds of thousands of men through annual expenditures of more than a billion and a quarter dollars for materials and supplies, and through the average annual expenditure of more than three-quarters of a billion dollars for capital improvements.

Last year Southern Pacific alone paid $94,486,000 in wages and expended $35,644,000 for materials and supplies.

When railroads prosper and are able to make these huge expenditures, workers in many industries are profitably employed and merchants and producers alike benefit from their sustained power.

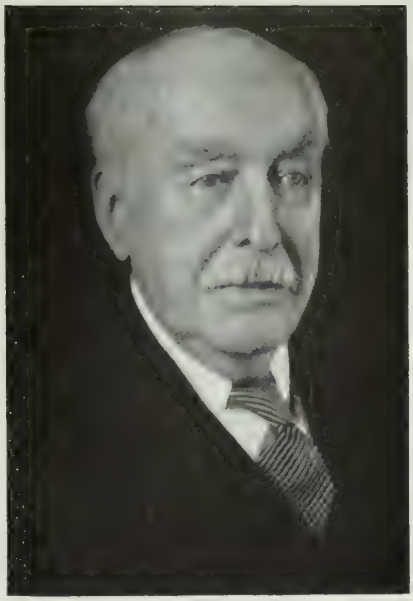
SOUTHERN PACIFIC

passenger agent of the Southern Pacific, died at his home in Palo Alto on July 21, aged 73.

Cornelius S. Murray, who for the past 16 years had been manager of the St. Louis office of the Dearborn Chemical Co. died July 12 at Springfield from a heart attack. Mr. Murray, who was born in Ireland in 1864, spent the greater part of his boyhood in Canada, coming to the United States when he was 18. He was an engineer for the Santa Fe for 18 years and superintendent of motive power for the Frisco for 10 years.

George K. McCormick, assistant engineer on the Cumberland Valley division of the Louisville & Nashville at Middlesboro, Ky., died in that city on July 18, following an illness of several months.

John Sumner Runnells, who had been connected with the Pullman Company since 1887, died July 11 at his summer home at Chocorua, N. H., three months after his retirement as chairman of the board of directors. He was 85 years of age and, except for a paralytic stroke several years ago, had been in good health up to the time of his death, which came after a day's illness. Mr. Runnells, who was born in Effingham, N. H. in 1844, graduated from Amherst College in 1865. From that time until 1885 he devoted his time to public and legal work, serving as private secretary to the governor of Iowa, consul at Tunstall, England, reporter for the Iowa supreme court and United States district attorney for Iowa. Mr. Runnells had



John S. Runnells

been admitted to the bar in 1871 and practiced law at Des Moines. He became general counsel for the Pullman Co., then the Pullman Palace Car Co., at Chicago in 1887, vice president in 1905, president in 1911 and chairman of the board in 1922.

William L. Breckinridge, former assistant chief engineer of the Burlington, died at his home in Chicago on July 11 following an extended illness. Mr. Breckinridge retired in 1923 after 44 years of service with the Burlington.

Charles J. Wilson, a former division superintendent on the Rock Island and the Northern Pacific, died at his home at Estherville, Ia., July 10, aged 74.

Henry S. Stebbins, vice president and general manager of the Midland Continental, with headquarters at Jamestown, N. D., died in that city July 8.

John T. Downs, superintendent of rolling stock of the Michigan Central, died at Detroit, July 7.

Joseph Seifert, secretary and auditor of the Duluth, Missabe & Northern, died at his home in Duluth, July 6, aged 60.

Louis E. Bean, chairman of the Public Service Commission of Oregon, died at his home in Salem, July 5.

George H. Ross, former executive vice president of the Toledo, St. Louis & Western and the Chicago & Alton, at Chicago, died at Los Angeles, July 1. Mr. Ross had made his home in California since 1911 when ill health forced his retirement from railway service.

William F. Gill, special agent for the Rock Island at Goodland, Kan., died July 23 at Stratton, Colo., aged 53.

JORDAN SPREADER
"Does the Work of an Army of Men"
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CONLEY FROG & SWITCH CO.

Memphis, Tenn.

Thomas Sloan, the oldest resident of Oklahoma, and one who, in the early days, had a part in pushing the line of the Northern Pacific into the western frontier, died in Guthrie, July 27. Mr. Sloan was 116 years of age. He was born in Ireland and came to the United States in 1826, making the passage on a sailing vessel in about two months. When Mr. Sloan was rejected for service in the Civil War because he was too old he became a superintendent of bridge construction for the Northern Pacific.

Supply Trade Notes

The Johns-Manville Corpn. has announced the following appointments in its recently reorganized transportation and government department. **George A. Nicol, Jr.**, vice president, formerly head of the railroad and government department, heads the new department with direct charge of sales to railroads, airways and airplane manufacturers; **C. S. Clingman**, assistant to Mr. Nicol in the administration of the department; **G. K. Bradfield**, staff manager in charge of government sales; **J. S. Doyle, Jr.**, assistant staff manager in charge of sales to electric railways, bus lines and bus manufacturers; **P. D. Mallay**, chief engineer of the department. Division sales managers are as follows: **R. P. Townsend**, eastern division, New York; **C. E. Murphy**, central division, Cleveland; **J. C. Younglove**, western division, Chicago; **W. J. Hennessey**, Pacific division, San Francisco; **L. Papineau**, Canadian division, Montreal.

Thomas D. Crowley has been appointed western sales representative of the **Electric Railweld Sales Corpn.** with headquarters in Chicago.

The Direct Steaming Co. of Canada, Ltd., has been incorporated under a Dominion charter, having its head office at Kingston, Ontario. Its principal activities will be the installation of direct steaming systems and related power plant equipment at locomotive terminals in Canada. By agreement with the Railway Engineering Equipment Co. of Chicago, the Canadian company will control construction of all future installations of direct steaming systems in that country. The directors are **William Casey**, vice president and general manager, Canadian Locomotive Co.; **S. C. Holland**, vice president and general manager, the R. W. Mitchell Co.; **G. P. Bogert**, vice president and general manager, Dominion Oxygen Co.; **J. G. Forster**, vice president, Ogle Construction Co.; and **L. G. Plant**, president, Railway Engineering Equipment Co. The officers of the new company are **William Casey**, president; **S. C. Holland** and **G. P. Bogert**, vice presidents; **J. M. Hickey**, secretary; and **G. W. Daly**, treasurer.

The Yale & Towne Mfg. Corpn., Stamford, has contracted to purchase the assets and good will of the **Stuebing Cowan Co.**, Cincinnati and Holyoke, Mass., makers of hand lift trucks. **James C. Morgan** will continue to supervise the sales of the Yale & Towne material handling devices. The executive personnel of the Stuebing Cowan Co. will enter the services of the Yale & Towne Co. **Walter C. Stuebing** will be assistant to Mr. Morgan, in charge of truck sales. **William Stuebing** will continue as superintendent of the plant in Cincinnati. A large factory for the manufacture of hand lift trucks and skid platforms is being constructed in Cincinnati.

A. R. Whitehorn, resident manager of the L. S. Brach Mfg. Corpn., at Chicago, has resigned to become associated with the **General Railway Signal Co.** at Rochester, N. Y.

Darius E. Peck, assistant manager of the law department of the **General Electric Co.** since 1920, has been elected vice president and general counsel to succeed **Allen H. Jackson**, retired.

W. R. Carnegie, vice president and general manager of **Berry Brothers, Inc.**, Detroit, has been elected president and general manager. **F. L. Colby**, president, has been elected chairman of the

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Room and Bath
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per day
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Grand Central Palace only 2 short blocks away

S. Gregory Taylor, *President*
Oscar W. Richards *Manager*

board and **John C. Witherspoon**, a member of the board, has been elected vice president. **H. L. Stanton** and **Joseph Berry Sherrard**, grandson of Joseph H. Berry, one of the founders, have been elected members of the board, the board having been increased by two members.

The American Hoist & Derrick Co., St. Paul, has opened a branch office and warehouse at 337 South Anderson st., Los Angeles with **W. H. Lummus**, who has represented the company on the West coast for many years, in charge.

J. N. Ebling, treasurer of the **Railway Specialties Corpn.**, New York, has been elected president. **J. A. Carmody**, formerly superintendent of electric equipment on the New York Central and **H. M. Fetterolf** in the sales department of the corporation, have been elected vice presidents. **Fred Roth**, formerly with the sales department of the Ohio Brass Co., has been appointed sales representative.

J. L. Artmaier has resigned as sales manager of the **Buda Co.**, and is now on an extended leave of absence.

Albert E. Ferguson, in charge of the St. Louis office of the **National Lumber & Cresoting Co.**, Texarkana, has been appointed general sales manager with office at Texarkana and St. Louis.

Charles E. Eveleth, a vice president of the **General Electric Co.** in the manufacturing department, has been transferred to the engineering department as a vice president.

The Extension Burners Work Outside Spread of 35 Feet or Less.

The Page Steel & Wire Co. announces the removal of the sales department from Bridgeport, Conn., to the American Bank building, Pittsburgh, effective August 5. Sales of chain link fence will be handled by **R. L. Teeple.** Field fence and general wire products sales will be handled by **S. B. Cairns.** Welding wire and specialties will be handled by **J. J. Flaherty. W. T. Kyle**, general manager of sales, will be at the general sales office, 230 Park Avenue, New York.

Fairmont Weed Burner Attachment

To burn vegetation outside the regular 18-foot spread, in ditches, up cut banks and down the side of hills, Fairmont Railway Motors, Inc., of Fairmont, Minn. is offering extension arms for the Fairmont M27 Weed Burner.

Each extension burner can be quickly swung in or out and raised or lowered independently of the other, while the machine is in motion. Two operators on the rear deck easily control the extensions with hand wheels, while tending fires and regulating wings. Each arm is constantly adjustable through an arc of 90 degrees, to any desired angle and height. The maximum reach of flame is 40 feet over all, but longer pipes can be furnished for much wider burning. Any of the six or eight burners can be stopped or started instantly by individual control valves, thus saving fuel where part of the tract is bare of weeds. All burners can be stopped or started simultaneously from the pilot seat.

'RALSTON BUILT'

Steel and Composite Cars

Completely rebuilding large numbers of steel cars in record time is an achievement that Ralston Steel Car Company has repeated time and time again.

This is possible only through our excellent facilities and well-balanced program, which, together with skilled workmen and competent engineers, keep the cars moving through the plant on regular schedule.

THE RALSTON PLANT is equipped to build New Cars, to Rebuild Old Cars, to Repair and to supply repair parts. All materials and work of the highest QUALITY and performed under expert Engineering Supervision.

RALSTON STEEL CAR CO.
COLUMBUS, OHIO

A trip to California

is not complete unless you go at least one way through the Feather River Canyon, the route of the **Scenic Limited.** For descriptive literature and complete information write:

BODE K. SMITH
Passenger Traffic Manager
Mills Building
San Francisco, Calif.

WESTERN PACIFIC
THE FEATHER RIVER ROUTE

Celite for Concrete

If you are interested in concrete, as everyone is certain to be who builds structures for the future, you are certain to know more after reading a recent booklet issued by the Johns-Manville Corpn., entitled "Celite for Concrete." A degree of workability of concrete may be obtained by using an excessive quantity of sand but this requires more water and thus reduces the strength of the concrete. Excess water is also used in an effort to promote workability, but while the concrete will flow into place when excess water is used, segregation is difficult to avoid and furthermore, the strength of the concrete is reduced. Concrete may also be made workable by the use of excess cement beyond that required for the necessary strength. While it has often been necessary to resort to this expedient in the past, it has the distinct disadvantage of adding greatly to the cost of the concrete.

It has been definitely proved for a number of years in this country and abroad, that true cohesive workability can be most effectively and most economically secured by the addition to the mix of a small percentage of diatomaceous silica in finely-divided form.

The use of diatomaceous silica is simply a means of insuring better concrete under average field conditions. By the use of this material workability and all of the qualities to be desired in the finished concrete can definitely be obtained in the field with a minimum of labor.

You may study the whole subject by getting the booklet from the company by addressing it at any of its many branches or at 292 Madison avenue, New York.

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The Only extra fast and extra fare train from Southern California

58 hours Los Angeles to Chicago
47 hours to Kansas City

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Chicago

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Center Plates
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Knuckle Pins
Air Brake Pins
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and
Miscellaneous Forgings

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Permanent, efficient insulation through countless miles of service

THROUGH the strains and distortion of thousands of miles of travel, Balsam-Wool Refrigerator Car Insulation gives constant, efficient protection. The patented crepe liners giving a stretch of 20% assure permanent sealing of the car despite strenuous wracking and distortion of hard service.

Balsam-Wool Refrigerator Car Insulation is not stitched, providing an unbroken surface impervious to wind and water. It is so much lighter than other forms of insulation that many ton miles of dead haul are saved. This means lower operating costs—larger profits.

Notice that one edge of Balsam-Wool Refrigerator Car Insulation is sealed. And since it is furnished in widths up to 9 feet, it can be applied from door post to door post in one unbroken sheet with the lower edge completely sealed.

Balsam-Wool will not rot, sift or settle. It is fire-resistant. It is economical.

Write for samples and complete information.

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with new removab
wearing plate
greatly increas
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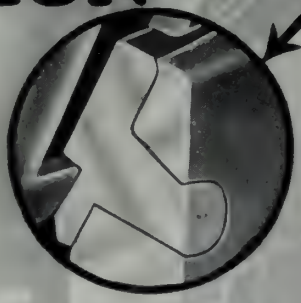

AGAINST SHOCKS
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AND IN TRANSIT

FOR CARS and LADING

THAN

SESSIONS-STANDARD DRAFT GEAR

STANDARD COUPLER CO.

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Transportation

The National Monthly of the Transportation Industry

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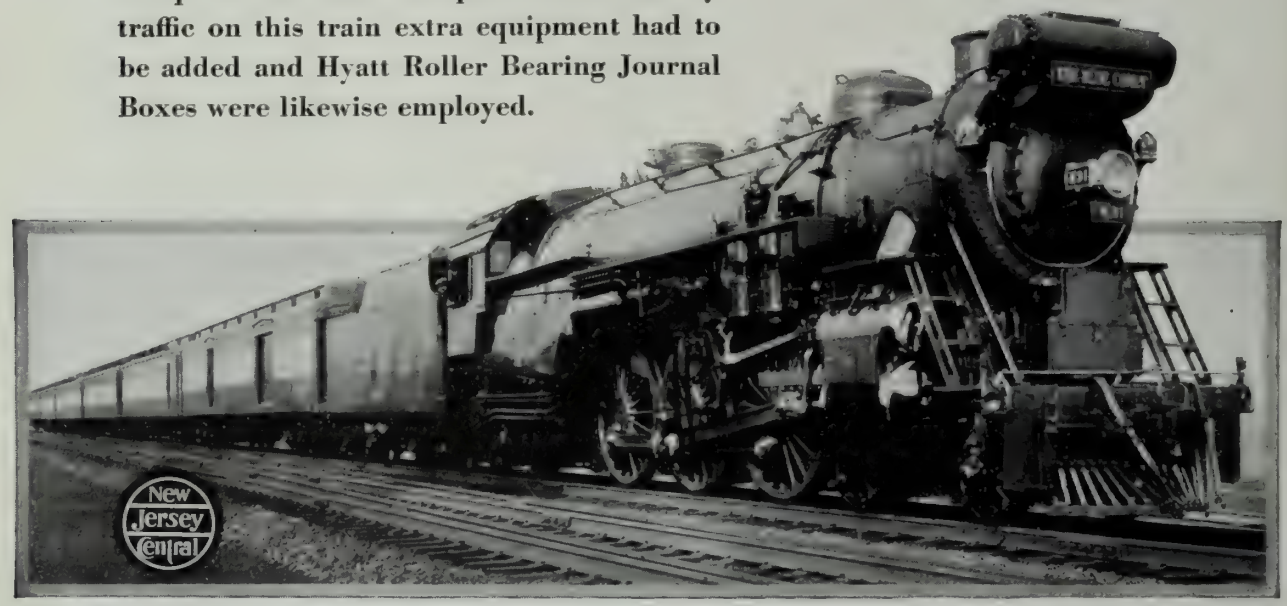
Vol. V September 1929 No. 3

More Hyatt Equipment for the New Jersey Central

THE Blue Comet—New Jersey Central's de luxe coach train between New York and Atlantic City—is now a familiar name on the roster of America's fine trains.

When placed in service a few months ago its equipment consisted of every important device for the convenience, comfort and safety of passengers—including Hyatt Roller Bearings.

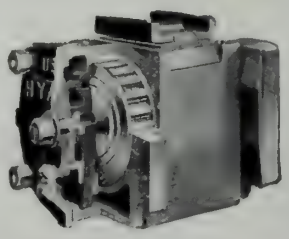
To provide for the unprecedented heavy traffic on this train extra equipment had to be added and Hyatt Roller Bearing Journal Boxes were likewise employed.



Repeat orders of this nature have followed the initial installation of Hyatts on many other roads too. All of which proves that Hyattized journal boxes meet every requirement of actual service.

And better yet, they meet every A. R. A. standard of installation. The Hyatt boxes for these new cars, like their predecessors, were assembled into Jersey Central's standard trucks by the regular railroad shop force—demonstrating that the Hyattway is the Right Way.

Hyatt Roller Bearings and Journal Boxes fit standard A.R.A. trucks. No changes in brake rigging, equalizers or other truck parts necessary.



Hyatt equipped Journal Box—cut away to show construction.

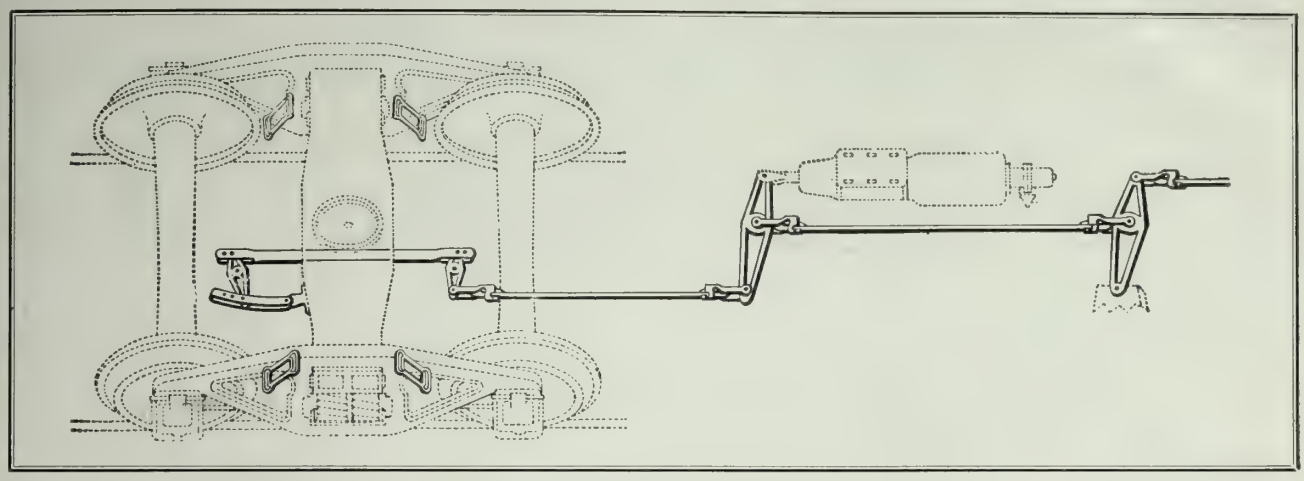
HYATT ROLLER BEARING COMPANY

Newark Detroit Chicago Pittsburgh Oakland

HYATT

QUIET ROLLER BEARINGS

PRODUCT OF GENERAL MOTORS



Strength
With High Resistance to Wear

MODERN heavy trains and higher speeds of present day train operation put a premium on "braking safety" not demanded a few years ago.

Schaefer foundation brake gear details were developed to meet this need.

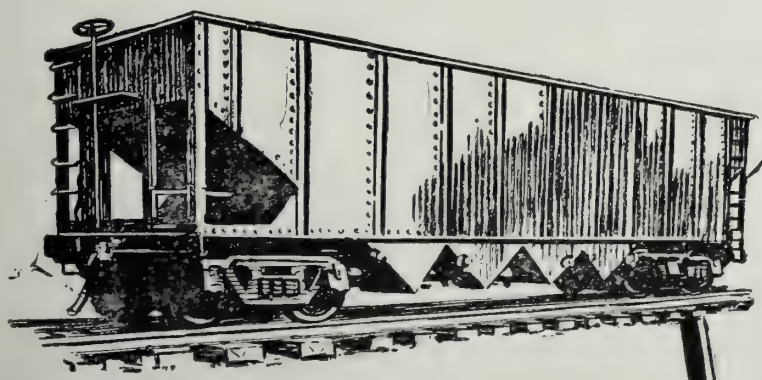
They are all drop forged from special wear resisting steel and are entirely free from welds.

Greatest strength is provided at points of greatest stress.

Their freedom from wear and unusual strength maintain high braking efficiency.

Each detail meets all A. R. A. requirements.

Schaefer Foundation Brake Gear details are easily applied and easily inspected. Because of their high strength and unusual resistance to wear they reduce costs for replacements and increase the safety of train movement.



Any Car is a Safer Car with Schaefer Foundation Brake Details

Schaefer Drop Forged Self-Locking Brake Hangers

Schaefer Drop Forged Loop Hangers

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Schaefer Drop Forged Body and Truck Levers

Schaefer Drop Forged Brake Rod Jaws

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General Offices: Koppers Bldg.

Pittsburgh, Pa.

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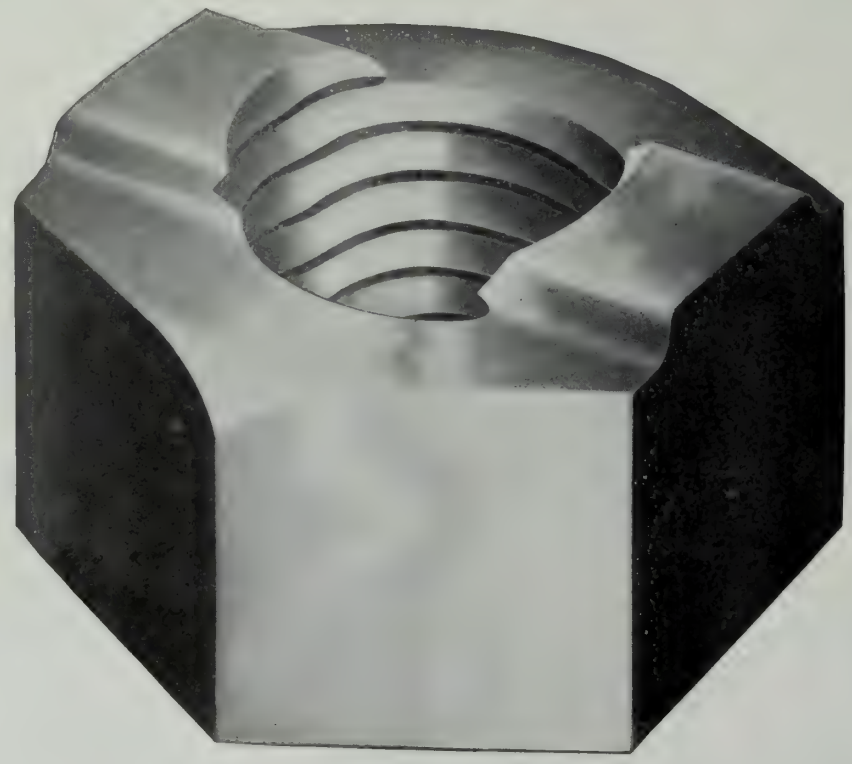

Even on equipment that has been scrapped, after long service, the Grip Nuts are found firmly in place.

Reclaimed, oil-protected from rust, thousands of these veteran nuts are once more in the storerooms, awaiting perhaps their twentieth application.

And, on locomotives, on cars—on trucks, draft gear, bodies—anywhere they're put—they'll hold bolted parts tightly, reliably, in place, just as they did on their first application.

Only Grip Nuts can make such a claim; only Grip Nuts have such a record. The secret of positive, repeated, locking is built, invisibly, into Grip Nuts alone.

The service of twenty nuts in *one* Grip Nut! Think what that means in reduced maintenance costs!

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The Only Manufacturers of the Only Grip Nuts

Transportation

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The National Monthly of the Transportation Industry

SEPTEMBER, 1929

VOLUME FIVE NUMBER THREE

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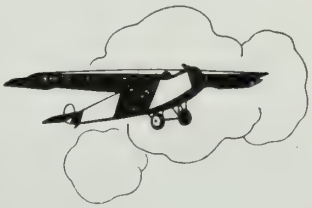

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OPERATING conditions today demand the pulling of heavier trains at higher speeds.

Only by using locomotives capable of producing higher horsepower can train movement be speeded up without reducing tonnage.

Super-Power Steam Locomotives haul heavier trains faster; shorten the railroad and increase its capacity; reduce the number of locomotives necessary for a given operation; reduce train movement costs; reduce maintenance costs; and save fuel.

221 LIMA Super-Power Steam Locomotives have been purchased as the result of demonstrated reduction in operating costs.

LIMA LOCOMOTIVE WORKS
Incorporated
LIMA, OHIO

"Speeding Up" by G. H. Coster, Received Honorable Mention in the Recent Baltimore & Ohio Photographic Exhibition at Baltimore.

What Railway Men Should Know

Facts and Figures Employes Should Have Handy for the Critical Public

By Lee G. Lauck

RAILROADS are commonplace things. The average person who starts upon a vacation or a business trip, takes his seat in the train, opens his book, or lights his pipe and watches the scenery go by, without even giving a moment's thought to the magnificent accomplishments of the transportation systems he expects to pass over or the magnitude of the plant and service which they have placed at his disposal. He scarcely, if ever considers the precision of operation; whether it is automatic or otherwise.

It must be apparent, though, that supervision and direction of the most capable sort is necessary to conduct the affairs of our large railroads if the movement of passengers and freight is to be so ordered that the railroads may render that complete and satisfactory service which will best build up the industries of the nation.

Such management of affairs that thousands of trains will leave their terminals at the time appointed, and proceed upon their various ways in accordance with their schedules, is the result of careful planning and watchful supervision. The loading, switching, hauling, interchanging and unloading of every freight, and of every less-than-carload shipment, is fraught with a multiplicity of detailed care and responsibility almost beyond belief.

WHEN A RAILWAY BUYS A LANTERN

IN ORDER to earn enough money (gross) to buy an ordinary hand lantern the railways are required to haul one ton of freight 93 miles; for a coal scoop 143 miles; a keg of spikes 555 miles; an ordinary cross tie 82 miles; a box car 168,946 miles, and a caboose 299,815 miles. To pay for a day of track labor it is necessary to haul one ton of freight 265 miles. For a day's wages of a machinist 583 miles. For a ton of fuel 246 miles. To buy an ordinary day coach the railways must carry a passenger 938,954 miles, and for a dining car one passenger has to be hauled 1,760,442 miles!

In that part of the transportation industry of the United States comprising the steam railroads, there is daily engaged an army of over one and two-thirds million men. Their work is supervised by a corps of about 17,000 officers, with about 5,000 additional professional assistants. It is important to know that this corps of officers and assistants consists of men of education and wisdom, with an enthusiastic interest in their work and in the problems of transportation as they develop and change from day to day. Not only must the traffic needs of the day be met, but such provision must be made that the future growth and development of industrial America may not be hampered by the failure upon the part of the transportation industry to meet its every requirement.

The railways of this country during 1928 were operating about 426,000 miles of track. On June 30, 1911, they were operating about 363,000 miles, so that over a lapse of only 17 years there has been an increase of 63,000 miles, or about 17 per cent in the miles of track operated. Of this total mileage over 90 per cent was operated by the Class I railways,

How Railroads Have Developed in Forty Years! Compare This Northern Pacific Monster With the Little Diamond Stack Engine on the Opposite Page.

that is to say, by those roads whose operating revenues amount to a million dollars or more a year. It may safely be stated that with less than 8 per cent of the world's area and with less than 6 per cent of the world's population, this country has more than 33 per cent of the world's railway mileage.

As a result of the rapid growth of this large concentrated industry, our railways, it has been necessary to provide an adequate plant to meet the development of the country and the ever increasing traffic. To meet this situation there were 53,200 passenger-train cars, coaches, baggage cars, mail cars, owned or leased by the Class I railways at the close of 1928; locomotives numbered 59,400, with a total tractive power of 2,589,246,000 pounds, or nearly 43,590 pounds per locomotive; and freight service carrying cars reached a total of 2,294,000, with a total carrying capacity of 105,300,000 tons, or 45.9 tons per car.

During the seven years, 1922 to 1928 inclusive, the Class I railways spent approximately $5,445,000,000, which amounts to $777,800,000 yearly, enlarging and improving their properties. These enlargements and improvements were made by the roads to keep pace with the rapid development of the country, and to increase the efficiency and economy of the operation. By years these expenditures were made as follows:

1922	$ 429,273,000
1923	1,059,149,000
1924	874,743,000
1925	748,191,000
1926	885,086,000
1927	771,552,000
1928	676,665,000
	$5,444,659,000

More important than the amounts expended is the question of what has been done with the money. Among other things the railways, during the seven years shown, have placed in service a large number of new and heavier locomotives, passenger cars and freight cars. They have cut down grades, reduced curves, improved terminal facilities, laid heavier rail and ballast, and in a thousand ways have put their lines into better physical condition. Important as all this improvement has been, it would have availed little had not the railway plant been operated, and the rolling stock handled more efficiently by the managements and the men.

This large concentrated industrial enterprise has a value much greater than any single manufacturing industry. Its capital investment at the end of 1928 is estimated to represent nearly ten per cent of the total wealth of the country. Railroads manufacture passenger-miles and ton-miles, and retail and wholesale this transportation to the public precisely the same way as any other manufacturer produces and sells his products to customers. When a passenger purchases a ticket the railways, in effect, sell him so many passenger-miles of transportation. If the distance he is traveling is 100 miles he purchases 100 passenger-miles of transportation. The total passenger-miles are therefore arrived at by multiplying the number of passengers carried by the number of miles conveyed. During 1928 the American public purchased 31,538,130,000 passenger miles.

In the case of freight, when a ton of merchandise is sent from New York to Chicago, a distance of approximately 960 miles, the payment of freight charges is equivalent to the purchase of 960 ton-miles of service. Ton-miles are the units of measuring up railway freight operation, and are arrived at by multiplying the weight of commodities conveyed by the distance carried. During 1928 our railways sold 432,985,068,000 ton-miles of freight service to the shippers.

The best available measure of railway rates is found in what is term-

The Great Northern's Contribution to Modern Transportation Is Exemplified in the 2034 Shown Here, One of the Finest of Its Kind in the Western Half of America.

Reproduction From Original Negative of Photograph Taken by a Woman in Santa Barbara When the First Southern Pacific Train Pulled in There As Shown, August 17, 1887.

ed the "average revenue per ton-mile" and the "average revenue per passenger-mile", that is, the average amounts received by the roads for hauling one ton of freight or one passenger, respectively, for one mile.

The average revenue per ton-mile does not refer to any particular commodity, or to the freight movement between particular points, but covers the entire revenue freight traffic hauled by the railways. Neither does the average revenue per passenger-mile refer to the passenger movement between any particular points, but covers the entire revenue passenger traffic moved by the railways. For the year ended December 31, 1928, the railways sold these services to customers at the rate of 1.081 cents per ton-mile and 2.850 cents per passenger-mile. The latter is scarcely more than the costs of sending a first-class letter to practically any point in the Western Hemisphere. So, for less than three cents the railroads carried a passenger and his baggage, where the weight is less than 150 pounds, one mile, and in addition they hauled approximately 9,000 pounds of vehicle to seat him. For only 1.081 cents they transferred a ton of freight one mile and also handled over 1,500 tons of dead weight to provide the service.

The average amount received by the Class I railways for hauling a ton of freight one mile was slightly more than seven-tenths of one cent in 1911, almost one and three-tenths cents in 1921, the highest level reached in recent years, and less than one and one tenth cents in 1926. There has been a steady downward tendency ever since 1921, the average revenue per ton-mile for 1928 being the same as that for 1927, the lowest of the last eight years.

The average amount received by these roads for hauling a passenger one mile was slightly less than two cents in 1911, almost three and one-tenth cents in 1921, again the highest year in recent times, and a trifle over two and nine-tenths cents in 1926. There was a steady decline every year between 1921 and 1926. The freight rate in 1928 represents a reduction of 15 per cent under 1921, and for passenger fares the percentage of reduction is about 8 per cent.

Few persons have any conception of the extent to which freight rates have been reduced since the beginning of 1921. The saving to the shipping public from reduced rates aggregated nearly four billion 880 million dollars during the years 1922 to 1928 inclusive. This is the total amount the shippers would have paid for transportation service in those seven years, above what they did pay, had the rate remained at the peak of 1921.

Thus the economies in operation have not accrued wholly to the railways themselves, for a large part of the benefits derived from reductions in operating expenses have been passed on to the shipping public in the form of reduced freight charges.

In addition it must be emphasized that our railways are generally regarded as among the most important purchasers of manufactured and other products of American industry; in many cases the largest single group of purchasers. They use over 27 per cent of the bituminous coal mined and about 5 per cent of all the anthracite produced. It is difficult to compute the proportion of the fuel oil output taken by the railways but it approximates 20 per cent.

In the case of forest products the railways are the direct purchasers of about 17 per cent of the total annual timber cut of the country, which would be increased to about 25 per cent if the direct use of railway equipment and construction were included.

The railways utilize nearly 28 per cent of the total steel output of the United States. In addition large quantities of metals, chiefly aluminum, lead, zinc and tinplate were purchased directly by the railways in amounts averaging about one per cent of the total output, and it is also clear that the railways played an important part in the cement and copper businesses. Because of their tremendous volume, these aggregate purchases of the railways exercise a wholesome and stabilizing effect on the market.

In order to earn enough gross to purchase an ordinary hand lantern the railways are required to haul one ton of freight 93 miles; for a coal scoop 143 miles; a keg of railway spikes 555 miles; an ordinary cross tie 82 miles; a box car 168,946 miles; a freight caboose 299,815 miles. To pay for a day of track labor it is necessary to haul one ton of freight 265 miles. For a day's wages of a machinist 583 miles. For a ton of fuel 246 miles. To buy an ordinary day coach the railways are required to transport a passenger 988,954 miles.

Few Persons, Starting a Railway Journey Ever Give a Thought to the Intricate Details Involved in the Great Transportation Industry Which Makes the Ride Comfortable and Safe.

and to supply a dining car one passenger has to be carried 1,760,442 miles.

Notwithstanding this situation, our railways maintain the lowest rates, with a very low capitalization per mile, and at the same time pay wages that place the American railway employe on a plane which might justify calling him the aristocrat of the world's railway workers.

An hour is relatively a short time, yet within that brief period comprising but 60 fleet minutes the railways of the country perform a service of amazing volume to the public.

During every hour of 1928 the railways earned $695,037 from their transportation operations and spent $503,425 in operating expenses. Every hour they paid wages amounting to $320,896, and taxes to national, state and local governments reached $44,298. Every hour 5,872 cars were loaded with revenue freight and approximately 88,653 passengers stepped aboard passenger trains. The freight service performed hourly was equal to hauling 49,292,471 tons of freight for one mile; while the passenger service performed during the same period was equal to hauling 3,590,406 passengers for one mile.

The same principle which governs the successful manufacture of everyday articles of life, such as clothes, shoes, and so on, governs the manufacture of transportation, consequently it follows that transportation as manufactured by the railways is no exception to the rule, and its price must be regulated by the cost to produce it. The cost of producing passenger-miles and ton-miles is made up by the working expenses, taxes and interest on capital invested.

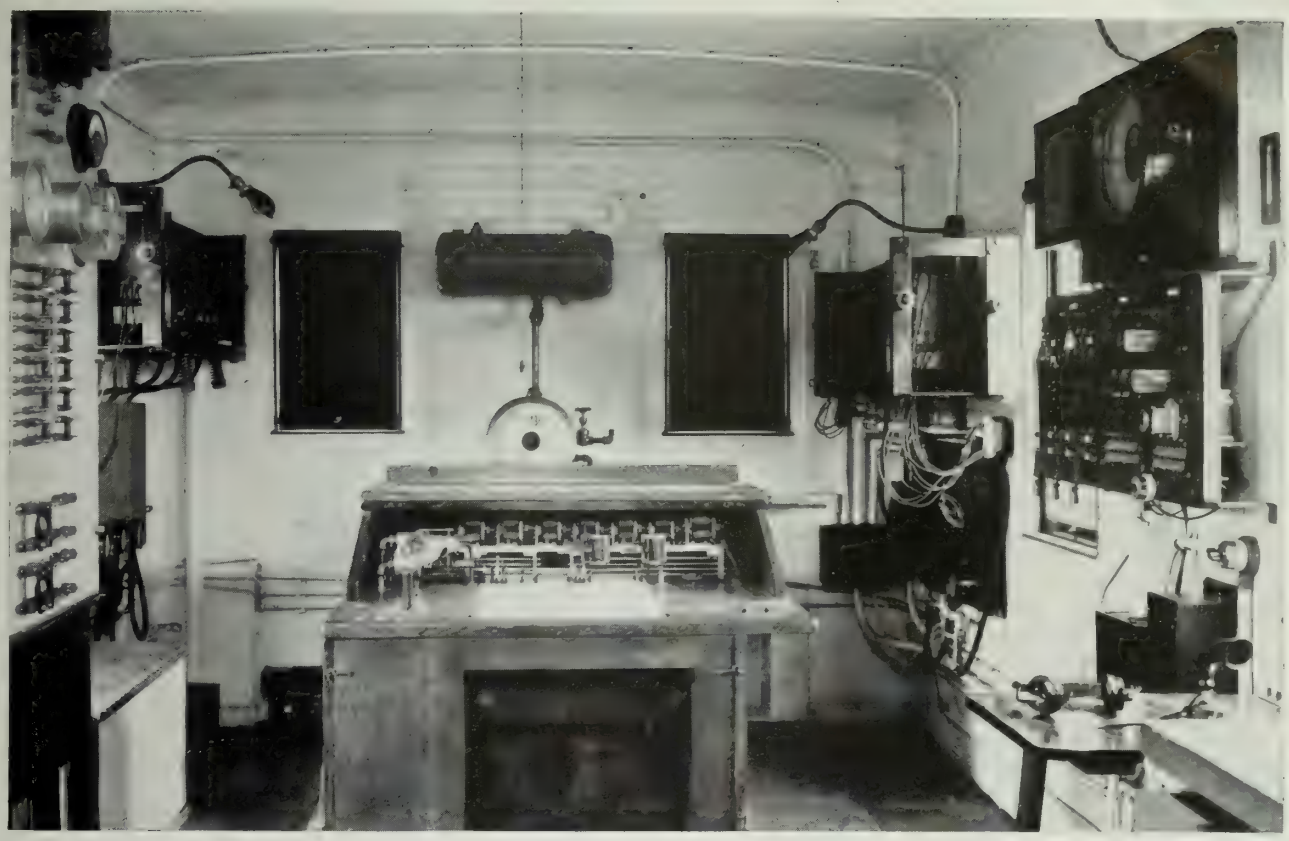
Our railways paid approximately $1,063,152 a day in taxes in 1928, at the rate of more than $389,116,000 a year. During the same period 64 per cent of the working expenses of the railways were represented by wages paid employes. The average compensation paid to an employe was $1,702, while the total amount paid out directly in wages to employes was more than $2,818,749,100. The average number of persons employed during 1928 was 1,656,289, so that the roads were compelled to show a performance of about 260,753,848,200 ton-miles before they could meet their wage bill.

The work performed by the Class I railways during 1928 involved 432,985,068,000 revenue ton-miles, approximately 8,326,636,00 ton-miles a week or 3,608 ton-miles for every inhabitant. Passenger-miles reached a total of 31,538,130,000, which represented an average service per inhabitant of 263 miles.

When we consider all these facts we only begin to realize that the American railway industry, for its size, and considering the large number of companies operating it, is the soundest and strongest business in the world. Without it life itself, except of the simplest sort, would be almost impossible. It penetrates into the remotest sections of the country and provides a service that is entirely dependable and adapted to our industrial life. While there may be some mistakes to answer for it has created the most effective, useful, and by far the cheapest system of land transportation in the world.

The author of this informative article is an economist of standing. He has been writing on transportation subjects for several years, a number of his contributions appearing in the New York Times Annalist, Barron's, and the New York Evening Post.

Electrical Dish Washing Machinery Used by the Southern Pacific in Commissary and Dining Cars.



Head End of Santa Fe Dynamometer Car Used in Air Brake Tests on the Southern Pacific in Oregon and Northern California.

Air Brake Tests to Last a Year

The Endless Mystery of an Important Art

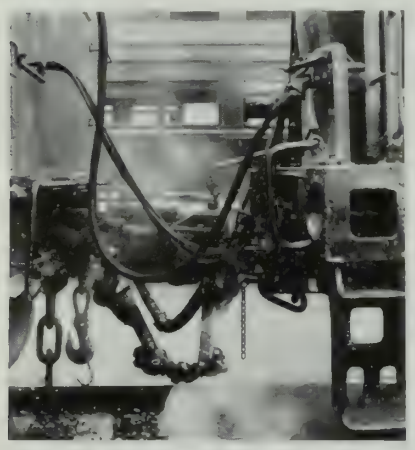
By John Steel

GRAY HAIRED men sitting in the A. R. A. convention at Los Angeles last June, smiled when they heard that air brake tests were to begin August 1, on the Southern Pacific near Eugene, Oregon. It was like hearing from an old friend who writes once a year, usually when he wants something, some chap whose story is always worth reading. Just as far back as their memories went these old timers could not recall a meeting in which there had been no air brake report.

Back in 1885 the first of these important and interesting documents was handed in to the old Master Car Builders' Association suggesting that elaborate tests be made covering four types of brakes: buffer, friction, air and electric. Such tests, the committee on automatic freight car brakes believed to be beyond its field, and apparently put it up to the makers to start something. This they did, resulting in what have ever since been called the Burlington tests in 1886 at Burlington, Iowa. Even at the risk of stirring up profitless discussion it seems perfectly safe to say that precious few of the gray heads in the Los Angeles convention heard either of these pioneering reports of long ago. It is equally sound, however, to suggest that doubtless they have heard a report on the subject every year since that time.

Shock and Slack Instrument in One of the Cars in the Test Train.

A man ought to store up a fairly large fund of knowledge concerning many things in forty years. Even air brakes which seem to have been a deep and endless mystery from the day of their creation ought to have become simple contrivances. Still men go on studying, year in and year out, smart, technically trained,



Connections Between Locomotive and Dynamometer Car.

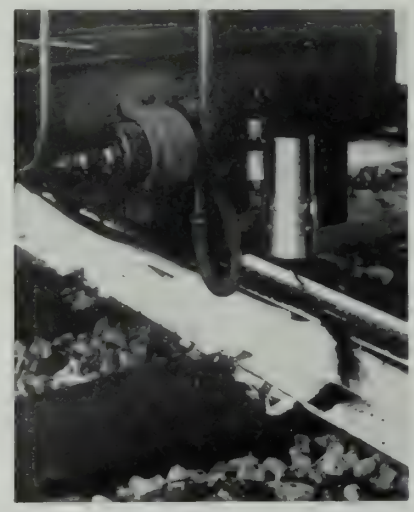
scientific men who would agree more readily in a debate over politics or religion than they would i na report covering what, if anything, is wrong with present-day air brakes, with particular reference to those used in freight service.

A great many important things have happened since 1885, as most of us know, but the most significant, for the present purpose, has been the perfecting of numerous instruments of one kind or another certain to make all the difference in the world between the early day brake tests, such as those at Burlington for example, and those now in progress on the Southern Pacific. Some of these wonderful devices are almost uncanny in their automatic efficiency, and all of them make the tests of 40 years ago seem almost a waste of time.

Man always has wanted to go some where. As this wish has been gratified through the passing years, and transportation has been more and more speedy, the perfecting of some device making it possible to stop at one's destination, or even at intermediate points of interest, without dislocating one's vertebra has continued to grow in favor. This objective seems to have been fairly well achieved except on a few lines where schooling, and not the brake, is at fault.

We are accustomed, as a matter of good form, to think of human beings as far more valuable than freight, but the cold truth is that if railroads could wipe out all the claims paid for damage to freight through rough handling, inability or failure to stop within a given distance and stop right, the passenger department could afford to cut down fares very materially. So many millions of dollars go into such payments that it is scarcely possible to overestimate the importance of air brake efficiency.

The tests on the Southern Pacific are being conducted on that part of the lines lying between Eugene, Oregon, and Black Butte, Cal., commonly referred to as the Siskiyou line. This section of track includes, within a distance of 250 miles, all the conditions necessary; the level road being found near Creswell 15 miles south of Eugene, Oregon; the moderate grade between Ashland and Grants Pass, Oregon, and the heavy grade between Ashland, Oregon, and Hornbrook, Cal. Another feature that adds to the desirability of the Siskiyou line for these tests is the fact that the Southern Pacific has two lines between Eugene and Black Butte. Most of the heavy traffic is routed over the Cascade line leaving



Paint Gun Under the Side of Each Instrument Car. This Shoots a Slug of Paint on Rail When Locomotive Passes Automatic Track Trip.

a great part of the day during which tests may be made without interruption. During the level road tests the train is operating out of Eugene and during the grade tests the headquarters will be at Ashland. At each of these locations shops are available. The schedule of road tests includes tests of 50, 100, and 150-car trains, and will require approximately a year to complete. The following table shows the number of tests to be made with each type of brake equipment:

Summary of Running Tests

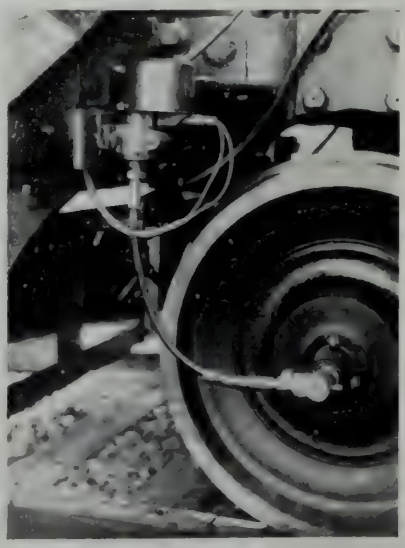
150 Cars	Level road	24
100 Cars	Level road	48
50 Cars	Level road	34
150 Cars	Grade road	12
100 Cars	Grade road	25
50 Cars	Grade road	8
		151

Total Number of Tests

Standing tests	20
Running tests	151
Total	171

Four equipments were put on the American Railway Assn. test racks in the tests conducted since 1925 at Purdue: the Standard K, the Automatic Straight Air, the Westinghouse Type FC-5, and the Westinghouse Type FC-3 These equipments were tested in both 50 and 100 car trains. In addition to the straight equipment, tests were made in which each of the new equipments was mixed in the same train with the Standard K. The results of the rack tests showed that the Automatic Straight Air Brake equipment did not warrant further consideration and therefore was not included in the program for road tests. This left three equipments to be subjected to road tests, the Standard K, the Westinghouse Type FC-5, and Westinghouse Type FC-3.

The object of the road tests on the Southern Pacific is to check under actual service conditions the results obtained during the rack tests, and at the same time secure information that could not be obtained on the rack. In the test rack it was possible to obtain in detail the functions of the different equipments and to study them for peculiarities that might eliminate them as unsafe or impracticable for further investigation. The road tests will carry this investigation to the point of practical operation and determine such information as stopping distance, shock and slack action, as well as check the results of the rack tests. The maximum length of train tested on the rack was 100 cars, but during the road tests it is planned to use trains of 150 cars in some of the tests. The final object is to determine what, if any,



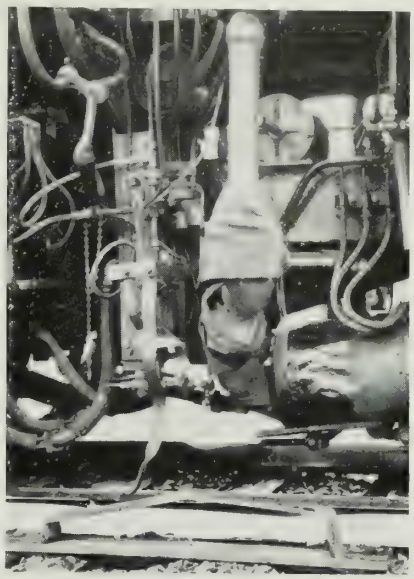
Speedometer Connection at Front Axle of Locomotive, and the Speedometer Armature Housing.

changes in the present standard freight car brakes are necessary or desirable in order to maintain and improve the high degree of safety and efficiency of railroad operation; and if changes are found necessary, to determine whether a brake equipment meeting the desirable specifications is available.

The road tests began August 1 under the direction of H. A. Johnson, director of research for the American Railway Association. His assistant and personal representative is W. S. Helmer. Twenty men selected from the organization used in making the rack tests at Purdue University compose the crew. Practically all these men are engineering graduates with several years' experience on rack tests, and all of them have been specially trained for the work to which they are now assigned.

In addition to the test crew there will be on the train at all times during the tests representatives of the Interstate Commerce Commission and the Westinghouse Air Brake Co., members of the A. R. A., committee on brakes and brake equipment, representatives of the Southern Pacific Co., and other interested persons.

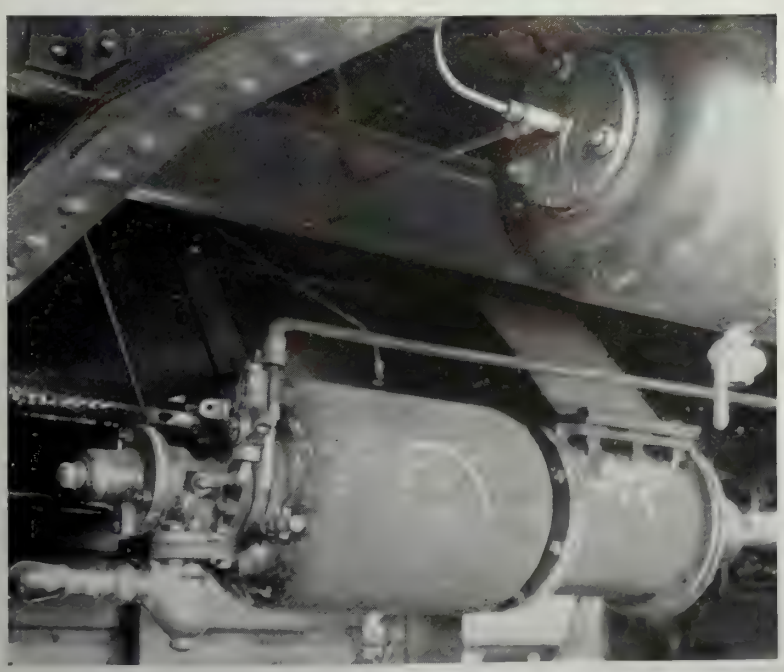
The work will include running tests with all cars in the train loaded, with all cars in the train empty, and with both empty and loaded cars in the same train. In level road operation stops will be made from various speeds up to 50 miles an hour, and the critical speeds below which emergency or service applications of the brakes result in rough handling will be determined. For test purposes, there will be two conditions of train slack, namely, minimum slack and maximum slack. The minimum slack will be with all cars in the train in uniformly good condition. The maximum slack will be created by using knuckles and pins worn to the condemning limit in each drawbar representing a condition of maximum slack which may occur in service. In the grade tests, the different equipments will be operated in accordance with the design of the particular equipment being tested. The trains equipped with the K or FC-3 brakes will be controlled by cycling, while the train equipped with FC-5 brakes will be controlled both by graduated release and cycling operation. In the grade tests, the engineman will try to maintain uniform speed, with stops and emergency applications of the brakes during certain tests in order to obtain as near as possible all the conditions of actual service.



Apparatus for Automatically Making Brake Applications

Headquarters for the grade tests will be at Ashland, Oregon. During the heavy grade tests the train will operate between Hornbrook, Cal., and Ashland, making tests in each direction on the down grade from Siskiyou. The grades from Hornbrook to Ashland average about three per cent, and curves are numerous due to the mountainous country over which this track is constructed. The track on which the moderate grade tests will be made has an average grade of about one per cent. One of the illustrations shows the first of the road tests, a 50-car train on the level section, passing over the automatic track trip at a high rate of speed during one of the tests. The automatic track trip is designed automatically to apply the brakes at a given point, the instant that this trip operates being recorded by the event pen on all instruments on the train. Some of these instruments are shown in the illustrations.

The dynamometer cars being used on the head and rear ends of the test train were obtained from the Atchison Topeka & Santa Fe Ry. and the Southern Pacific Co. The other seven instrument cars are Santa Fe all-steel caboose cars. The 210 tank cars each of 10,000 gallon capacity were obtained from the General American Tank Car Corpn.



Standard K. Brake Equipment Under One of the Instrument Cars.

On the Cover

"The Night Flyer," a silhouette, shown on the cover this month, is a reproduction in half-tone of one of the photographs shown in the Baltimore & Ohio exhibit recently. The picture was taken by Wm. Neal Seibold. It received honorable mention in the awards. It is shown on the cover through the courtesy of F. X. Milholland, assistant to the senior vice president of the Baltimore & Ohio Railroad.

Few sons attain the praise of their great sires, and most their sires' disgrace.—*Homer.*

If Australia could be transplanted into the Atlantic Ocean, it would about fill up all the space between the United States and Great Britain. —*Christian Science Monitor.*

'Andling Your Luggage in England

By UTPS

You are standing on a station platform, somewhere in England. The train you want is coming. Suddenly a fat suitcase seems to hurtle itself out of a window. You look for evidences of the wreck, or else expect to see an insane passenger come dashing out of the window, following in the path of his luggage. But the passenger walks calmly out of the door.

You are in England. And that's the way they sometimes do business over there.

"Redcap, suh?" is a question you won't be hearing there. It's always "Porter, sir?"

Instead of the familiar horde of redcaps you'll see an army of stalwart porters, equipped with a sort of hooked harness arrangement that seems very queer until you realize that they use it to help them carry more luggage than any redcap would hoist, even if the tip were large enough to provide a chicken dinner and a new red sweater for his wife.

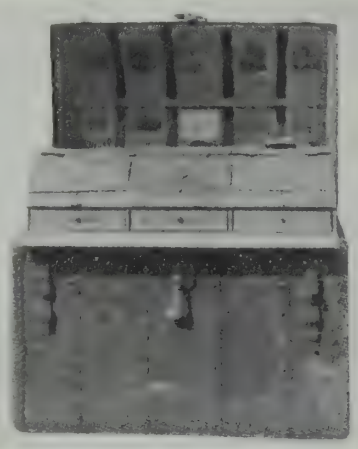
An Englishman seems to travel with all his luggage by his side. He is seldom willing to part with his bags, no matter how large and unwieldly his collection may be.

There's nothing to an English trip if you're in the habit of taking the Twentieth Century between New York and Chicago, or even an occasional excursion. Six hours is the longest trip across the country, and 18 hours is the limited stretch along the length of the countryside. Densely populated as it is, the country, you see, is physically small.

The English are supposed to be more leisurely than Americans. However, while traveling, there are always some who appear to be in a tremendous hurry. These are the species who do not wait until the train stops to dispose of their luggage to a porter. They stick their heads through the windows, yell for one, and then pass their portmanteaux to him through the window! Just how this expedites their journey, we don't know. The only logical way, as we see it, would be for the owner to follow the bags through the window to the platform.

With his collection of hand baggage, cumbersome portmanteaux, the Englishman really needs a taxi built with a rail to accommodate a load. This type of cab is used in Great Britain. Trunks are the exception over there rather than the rule, and not much shipping in advance is done.

The amount of personal baggage allowed free on each adult ticket is 150 pounds for first and 120 pounds for second class, when there's a second class car in operation. If you travel third class, you can have only 100 pounds of luggage. Excess bag-



An Old Trunk That Came Over in Colonial Days From England.

gage is paid for according to mileage. English railway companies refuse to be responsible for articles accompanying passengers in trains.

There is no baggage checking in England. Is checking considered unnecessary in England because they are more honest there than in America? We cannot be sure, because no statistics are available on the quantity of missing baggage in that country.

If you do not wish to take your luggage with you in the train, have it labelled with your name and destination, and it is placed in the luggage van nearest your car. Every English train has two or three luggage vans.

When a station is reached, all luggage marked for that station is dumped out on the platform in charge of a guard. You simply pick out your luggage, or point it out to your porter, who will carry it away for you. All of which gives rise to the thought that the nervous looking persons one sees in English stations and trains are Americans accustomed to checking their baggage. Knowing that anybody may walk away with their luggage when the station is reached, and no questions asked, might well worry the Americans. But it does not seem to bother the English. That they consider checking an unnecessary evil one railway company discovered some time ago when the management tried the checking system, and had to give it up. The people wouldn't use it.

You tip an English porter two pence for each piece of luggage he takes care of for you, hence the aforementioned harness arrangement. Don't over-tip by giving him more. Don't under-tip and give him less. It's about six cents in United States money. And very cheap, too, considering the size of each piece of English luggage.

Baggage may be sent in advance, of course, if desired. There are two large express companies in England, whose messengers call for, convey, and deliver baggage, the Pickfords and Carter Patterson.

Both these companies maintain offices in every town. It is not even necessary to phone them. The companies have cards distributed bearing their name, and one of these in the window of a house is a signal for the driver to pick up something; just as the American housewife in the smaller cities places a card in her window for ice. The drivers have regular daily routes covering the entire town, passing every door.

The British railway companies' system of transferring passengers' unaccompanied luggage is very complete. They will call for, convey by rail, and deliver personal luggage for passengers. The charge is two shillings for a piece of luggage, prepaid. That means about 50 cents here. They will call for and convey baggage by train to destination for only one shilling for a bag or case. And they will convey by rail from the station and deliver for only one shilling. The weight of a package is limited to 112 lbs.

English luggage manufacturers and railway companies do not seem to cooperate. The manufacturers make their portmanteaux too deep to go under a seat in a railway car. They must be placed overhead, where the passenger is in constant danger of being hit on the head by his own bulky suitcase falling off. Only at considerable inconvenience to himself and fellow passengers can an Englishman take down his overgrown suitcase to extract something from it. If this becomes necessary several times during a journey, we may well wonder why Englishmen do not stay more at home.

English signs have recently been removed from Japanese railway cars. It is explained that English speaking travelers are not the railway's only foreign patrons, and that in order not to discriminate in the use of foreign tongues, only Japanese signs will be used hereafter.

Reading Maketh the Full Man

General Knowledge in Demand

By F. W. Thomas

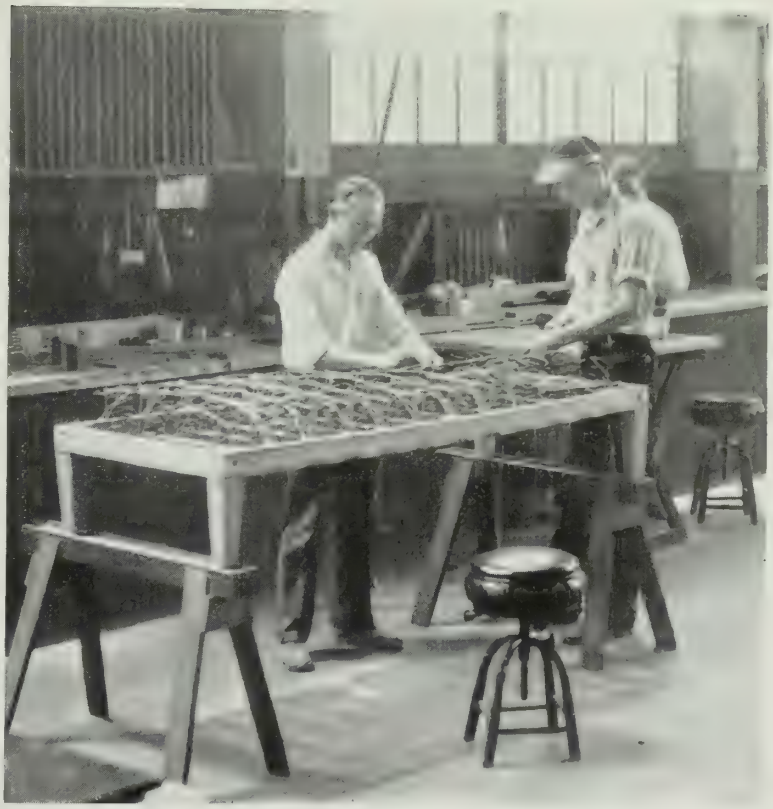
Supr. Apprentices, Santa Fe Ry.

Topeka

There was never a time in the world's history when general knowledge was so widely diffused. The average high school boy today is possessed with more general useful knowledge than all the wise men and philosophers of ancient times. Not for the reason alone that our schools are better, or because the boy has more gray matter in his head, or that he is any more studious, but because knowledge is more easily obtained.

Not long ago I piloted about 200 Santa Fe apprentices from all parts of the system, through Field Museum, Chicago. They were interested in the wonderful assembly of interesting things collected from all parts of the world animals, birds, fishes, mining, agriculture, the various types of people inhabiting the earth, their manners, customs, dress, culture, etc., all so interestingly displayed for their pleasure. But strange to relate, the exhibits of the old Egyptian mummies, caskets, shrouds, inscriptions, decorations, seemed to hold them longer. Next in order of interest was the skeleton of a huge dinosaur. These two exhibits, remote from each other, but closely akin through antiquity and extinction gave the boys a real conception of a lost art of a highly cultured and extinct race, and vivid knowledge of a very ancient, helpless and useless, mammoth which at one time roamed this planet. Boys, and men too, will read eagerly anything upon subjects of dominating talent. A good baseball player will read all the baseball stories he can find. A good cook will never let a printed recipe go by unread. A skilled mechanic will gladly read any article, study a picture or an advertisement of a fine machine tool. So on with art, and with the legal, medical, and engineering professions.

In training apprentices on the Santa Fe we place within their reach text books, encyclopedias, magazines, papers, cuts, advertisements. We do not require, nor do we encourage memorizing long lists of tables or statistics but we do impress upon them that these tables, figures, and formulas exist, and where they may be found in the apprentice school rooms. These books and magazines containing articles and pictures bearing on their trade, are always thumb-marked by the boys of the trade affected.



The Boy Who Earns His Own Dollars Is Very Likely to Have A Sensible Conception of Their Value With Some Worth-While Ideas About the Dignity of Labor.

In an inspection of some books in one of our apprentice schools, I noticed one rather expensive book had a few pages torn from the binding, lying loose in the book, while the other portion was practically unused and unsoiled. Upon calling the attention of the instructor to the abuse of the book he replied: "Those pages contain the most valuable illustrations and information on colors, blending of colors, shading, shadows, etc., of all the books we have, so the painter apprentices turn to these pages for study."

Constant use had literally worn out those pages.

It was reported to me that a number of boys attending one of our apprentice schools were loafing a great deal during schools hours. Some were seen comfortably seated reading books and magazines. Further investigation brought out the fact that a blacksmith apprentice was reading a book on metallurgy, hunting for information on irons, steels and methods of forging. Another was reading a book on the development of the steam locomotive, particularly the type of valve gears, and a third was reading a highly illustrative catalog on abrasive wheels. The fourth was reading a current magazine devoted to boilermaking, hunting up some information on strength of seams.

Now, you may be wondering what all of this is about. I simply want to stress the important part reading has in training for the practical trades.

One rule of our apprentice system, an important and humane one, is that the boy must demonstrate to the apprentice board unmistakable talent for the trade he is learning, during the first six months of his apprenticeship. This apprentice board composed of the master mechanic, general foreman, department foremen, and instructors, meets monthly to discuss the indentured apprentice's deportment, fitness, etc. The fact that he is a good boy in that he is well behaved, punctual, constant in attendance upon work, sticking to the job, does not necessarily pass him. He must show by his work, interest in the trade, quickness to catch on, or ability to grasp, that he has some real talent for the trade. This often is exemplified through watching the boy closely what books, pictures, and papers, attract him.

The superintendent of the shops, a big-hearted, sympathetic man, sent a boy to my office one day with a brief personal note "Put this boy on as a painter apprentice". He did not say examine this applicant, or look him up, but "put him on as a painter apprentice".

The boy was undersized, undernourished, and underdeveloped for one of his age, very timid, bashful, jumping, and easily startled at any nearby noise or step. Investigation developed the story of a brutal, drunken father, who had beaten and cowed the boy; a crippled mother was working to care for the brood.

The boy had been removed from school at ten to help his mother. In the shop he seemed hopeless. The school instructor reported him for taking from the school room a book of scrolls, fancy lettering, a color chart, a small box of water colors, some colored crayons, and some magazines. Upon questioning him he admitted the charge, saying he didn't mean to steal. Some time afterward I noticed him at his drawing desk doing something slyly. Going over to him I turned up the edge of his drawing paper, and found the head of an Indian, war feathers, paint, and all, a credit to an artist. Other equally interesting exhibitions of dormant talent were stuck around here and there. Naturally, he was frightened, but much to his relief and joy I told his instructor to take him off mechanical drawing and give him a sketch pad, colors, brushes, book of models, etc., telling him to copy and color them all. From that moment this boy was born again. I could understand now, why he kept looking at the pictures in the papers and magazines and books. He was unable to read intelligently. I arranged with the shop instructor to give him some more of the nicer variety of work, and less of the rough, daubing kind, and eventually he became one of the most talented painters we ever graduated.

With all trades a certain amount of

Successful Men Always Talk Much About Work. Few Had An Easy Time in Their Youth.

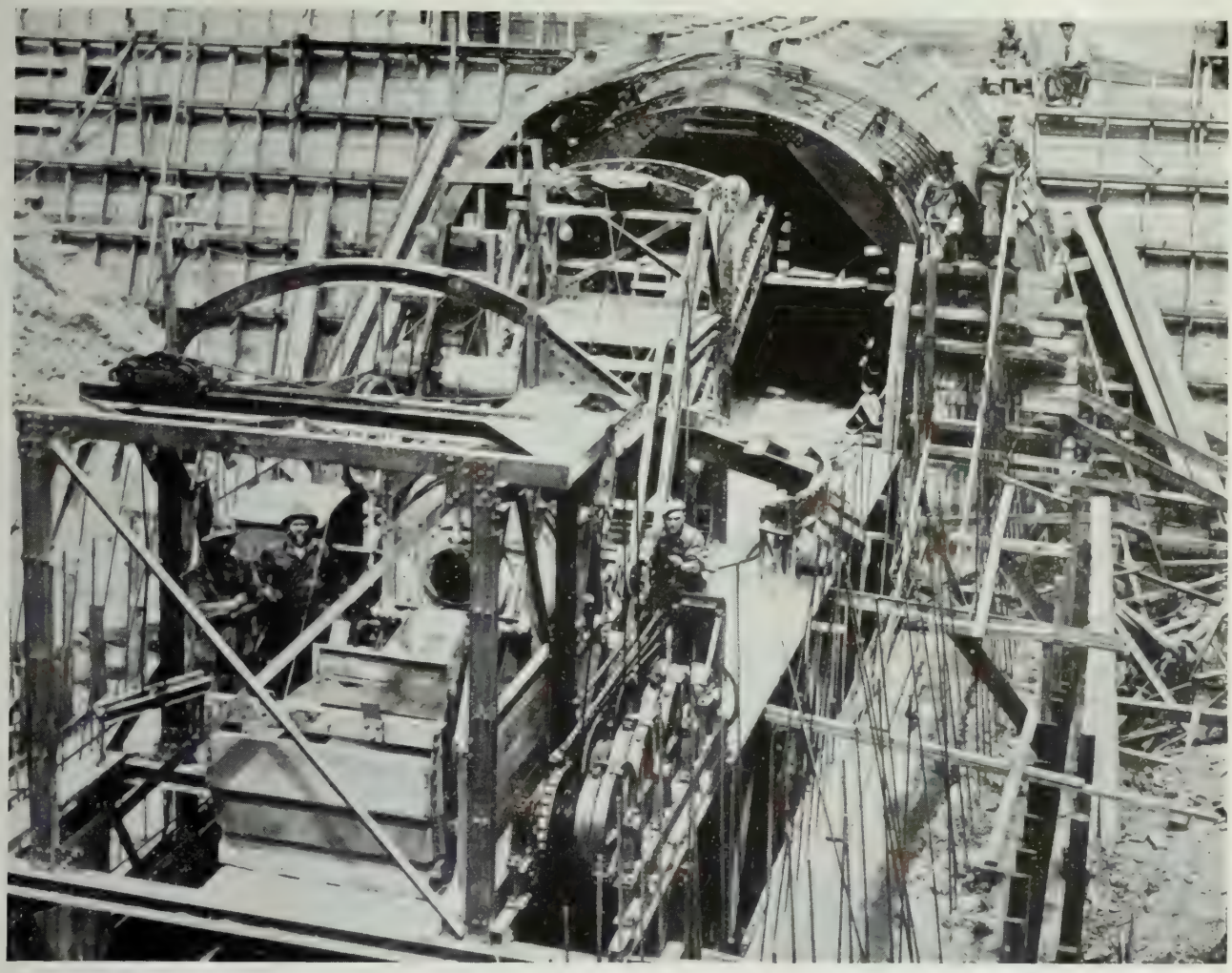
study is required in the regular curriculum, but this reading bears directly upon the apprentice's chosen work. In the training of a carman apprentice, in addition to his mechanical drawing which trains him to be exact; the 640 problems to be solved, teaching him to reason; there are 350 questions on A. R. A. rules, 100 on safety appliances, 100 on air brakes, 50 on A. R. A. loading rules, and 50 on handling explosives. These being in his course, the boy knows the information is around, that it can be found, and he must get it and write down the desired answers. This instills a habit of looking up things, of reading and research. He learns the value of printed matter, and that he can find in books, papers, and magazines information that will supplement his particular shop training.

Very few boys complete their apprenticeship who do not at some time, during their apprenticeship or afterward, consult the instructor as to some good book or periodical that would be profitable for him to purchase. Many start out early buying books, and it is surprising how soon they acquire a creditable library of useful, helpful volumes. The club houses maintained by the Santa Fe are well stocked with papers, magazines, and books, and these are used by a great many employes. We advise our apprentices to read regularly and thoroughly one newspaper, to own one good reference hand book, and at least one good book, a treatise on their trade.

We have on this road a book of standard shop practices, "The Locomotive Folio," commonly known to us as the Mechanical Department Bible. It contains information showing size, material, commercial or trade number, and method of using and applying any part of a locomotive or car. Mechanics learn gradually many of the folio requirements through application and practice, but apprentices study it from the very beginning of their apprenticeship. On every job on which the apprentice works in the shop he must, upon his next attendance at school, look up the folio references and requirements. There are 450 Locomotive Folio questions in our course for machinist apprentices; a limited time is set in which the apprentice must find the answers, and write them in a book provided for the purpose. This not only aids his memory but it gives him a good reference hand book of his own composition. In this book also he writes answers to a set of questions of company, state, and federal rules, on maintenance of equipment. This method of instruction gives him much valuable supplementary information bearing directly on his regular shop training. It is available, but he must hunt it up and record it.

The school room course is as complete as we can make it. In addition to the mechanical and free hand drawing, sketches, mathematics, etc., as he enters upon a job in the shop, the apprentice finds in his next class in the school room a block of ten questions pertaining to the job upon which he is working in the shop, and these he is required to answer. This gives him a much better understanding of the job or machine he is operating.

Boys reared in unfavorable environment, especially those who have had only meager opportunities of obtaining an education, generally have a very limited vocabulary, and have great difficulty in expressing their meanings in clear, distinct language. We have found a good mechanical dictionary, or a dictionary of mechanical terms and words, a very valuable book. To such boys this has been a wonderful book. It has enabled many poorly educated boys to



Concrete Machine Used in Building the Cascade Tunnel for the Great Northern Railway.

define clearly and understandingly, many mechanical elements or devices which their limited vocabulary made an almost impossible task.

Many railroad men have asked me why I require machinist apprentices to study boiler rules, and A. R. A. rules. The question has been answered many times by relating briefly the history of one boy. He came to us as an apprentice at 16, strong of back, arms, and legs, but with only a seventh grade education. He worked apace, on time, rarely laid off, never loafed; when a job was completed he reported to the foreman for another, was obedient, courteous, and industrious.

One day while I was visiting his schoolroom, he asked me why I made machinist and boilermaker apprentices study "those old car rules". He was told, "to make him know a little more than the other fellows; to fit him for a better job."

He took the cue. Whenever he heard a subject discussed or a question propounded, he never rested until he had acquired all available information on the subject. A few years afterward we needed a foreman at a small but important point. About a dozen locomotives were handled daily, but the interchange of cars was heavy, requiring the foreman to be a locomotive man and intimately acquainted with the A. R. A. rules. This young man got the job. A few days afterward while standing on the station platform at that point, an old car foreman of a competing road, the dean of the interchange committee of the six roads, came to me and blurted out: "Your Santa Fe is a h—l of a road, sending a boilermaker here as foreman where he will have to buck up against all us old car foremen."

Two weeks later I saw the same fellow. "Say," he inquired, "How in h—l do you Santa Fe fellows 'learn' all your boys so much? You send a boilermaker out here as foreman, and he has all us old fellows floored on car rules, and we can't put nothing over on him."

The young fellow is now master mechanic, one of the youngest men ever appointed to that position on this road.

Intensive reading bridges one of the difficult features, where and how to find information. The boy really learns that reading makes him ready. It was Bacon who said, "Reading maketh a full man; conference a ready man, and writing an exact man."

A Smart Engineer, Too

It may not be long before the railroads of the country will begin to use the roadside garage and repair shop for repairs to their equipment. A start in this direction was made one day recently when the "Katy Flyer," the M-K-T's crack train, had a broken piston-valve on the engine, near Temple, Texas. The engineer coasted until he came to a garage, stopped his train, had the valve repaired at a cost of 75 cents, and pulled out 30 minutes late.

EDISON and his STORAGE BATTERY

One of a Series of Historical Sketches Presenting the More Significant of Mr. Edison's Series of Experiments from 1898 to 1908 in His Search for a Dependable Economical Storage Battery

Why Edison Decided to Search for a Better Battery

WHEN Mr. Edison was 21, he learned a lesson about invention that he never forgot. He invented an electric vote recorder; and although it "worked" it did not fill a commercial need that was clearly enough defined to make it commercially successful.

After this he always examined minutely the commercial need of an invention before trying to develop it. It is to this practice that his biographies have ascribed his success in giving the world so many *useful* inventions.

It was his belief in the usefulness of better lighting that led to his invention of the incandescent electric lamp in 1879. His lamp in turn required electric current. He is not the originator of the electric generator, but he was the first, when its need appeared, to build one that proved commercially practical; and in 1882, he opened the first electric power plant.

As the electric power industry grew and the uses of electricity multiplied, he foresaw a need for a storage battery having the same commercial qualities of economy and dependability that he had achieved in his lamp and his generator.

Mr. Edison's laboratory at West Orange, N. J. The truck seen in the front is from Mr. Edison's second electric railroad locomotive which he built and operated in Menlo Park, N. J., in 1882.

Such a battery as Mr. Edison visualized it, would be light, compact and long lived. It would deliver known amounts of power at all times. It would resist abuse, physically, chemically and electrically. It would need few if any repairs. It would be easy to operate and care for.

In 1898 he began a series of experiments seeking, from the elements and compounds provided by Nature, those having the chemical and physical properties such a battery would require. It was not until ten years later that his search proved successful.

Edison *Steel Alkaline* Batteries give Economy a
ple Unit Control, Signalli

EDISON STORAGE BATTERY COMPANY, ORANG

What This History Means Today

A Deliberate Invention

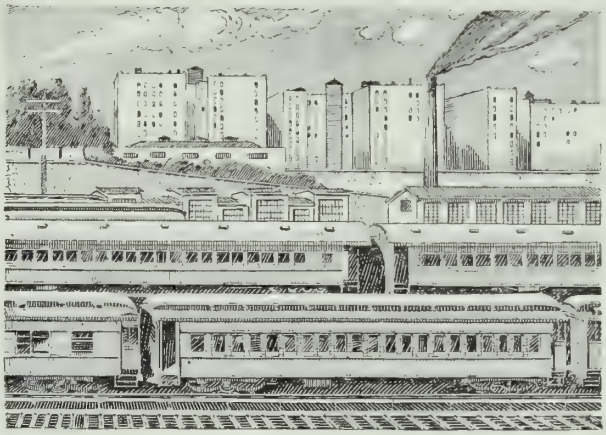
THE most significant fact about Mr. Edison's invention of his storage battery, s related on the opposite page, is that it was *eliberate*, not accidental.

First, he decided an economical and depend-ble battery was needed.

Second, he determined clearly the proper-es, physical, chemical and electrical, such a attery must have.

Third, he proceeded by the process of sys-matic, experimental elimination, to find a roup of metals and their compounds inher-ntly possessing these properties.

Before he finally succeeded in his search, he conducted nearly 100,000 experiments, built more than 20,000 different experimental batteries, and produced chemical compounds that had never before been commercially available.



Many railroads with seasonable variations in passenger traffic, "lay up" cars for months. This is but one of many occasions when the Edison Battery's exclusive advantages appear. It may stand idle indefinitely, in any state of charge, without injury *of any kind*, without attention *of any kind*, ready for instant duty whenever the cars are returned to service.

henever train-speed is inadequate for axle generator operation, continuous, dependable car lighting depends *entirely* upon the battery.

A Specialized Battery

That so much work was necessary was due entirely to Mr. Edison's refusal to stop until he had actually found how to make a battery with the properties he had determined in advance were essential.

He built his battery specifically for industrial duty such as car lighting, multiple unit control, signalling, and motive power (trucks, tractors, etc.), all of which are embraced in railroading, and in which fields it is already the most widely used.

He did not build it, nor is it sold or recommended, for such duty as automobile starting.

It is a *specialized* battery; and like other products especially intended for specific uses, gives advantages in its field that general-purpose products not always can.

pendability in Railway Car Lighting, Multi-Motive Power Services.

TRADE MARK
Thomas A Edison

J. . . . BRANCHES IN PRINCIPAL CITIES

—International Newsreel.

How the King and Queen of England Travel by Rail. This Is the Day Saloon.

When Does the Five O'Clock Train Leave?

By Genevieve Morrison

WHAT time does the five o'clock train leave, is not a figurative question manufactured to get a laugh. It is one of the standing jokes of the railroad passenger service. As information clerk in a small town railway station situated half-way on the direct route between two large cities I heard many such ridiculous questions while I railed, ranted and giggled to myself at the travel predicaments of an anxious public.

One might think that it is the unseasoned traveler who misses his trains and forgets his information as fast as it is given to him. But every passenger clerk knows that nine times out of ten it is the traveling man and the bored traveler who dash to the ticket window, elbow aside another passenger seeking information or transportation, and demand tickets for the train that is in the station and ready to pull out.

I was surprised during my information desk experience to find that it is sometimes the most prosperous man who is most reluctant to part with his money for traveling expenses. I remember the annual trip made by one old couple from our section of the country where there are many rich farmers who spend the winter in the South. One day a forlorn old pair approached the window to inquire about winter rates to St. Petersburg. Their clothes were shabby to the disreputable stage and in miserable condition as to cleanliness. After learning the rates the old gentleman took out a tobacco tin crammed with bills and bought two round trip tickets. When asked concerning his reservations he said that he and his wife would ride in the day-coach for the two days and nights of the journey, and that they had brought their food for the entire trip. Pity changed to wonder and astonishment when I learned that they had loads of money, no children, and that the head of the family had been retired for years and was well able to afford the finest accommodations we had to offer. Every year they made their pilgrimage to St. Pete under the same peculiar circumstances. I should have liked to follow them and inspect their winter quarters at the other end of the line. Some moderately situated traveler with just enough cash for the trip would have done it with as much comfort as his funds would permit. And he would have had an enjoyable journey!

The vaudeville act playing two towns a week with a long jump between stands is an unending source of wonder to me. When one realizes that these people leave one theater after eleven or later at night, to play a matinee in a town 180 miles away the next day without rehearsal, after a night spent sitting up in an out-of-the-way junction where the exigencies of the trip made it necessary to change trains in the early hours, one can feel only the greatest admiration for their pluck and endurance.

Holiday time in a railroad station is one round of questions and answers and one must know one's geography and time tables, to keep up with the rush. The increased traffic attending the season naturally causes great congestion and delay in schedules. The information clerk is kept busy telling why Aunt Anna from Dubuque did not arrive on the first section of No. 40 instead of the second. The youngsters are expected home from schools and colleges, and anxious parents must be assured that there have been no wrecks along the line. Connections and delay must be apologized for as tactfully as it is humanly possible to do in the circumstances. But the holiday spirit of the crowd usually permeates the atmosphere and lightens the distracted clerk's burden.

It is a continual round of questions, the job of the information clerk, but it is that same round of questions ranging from the ridiculous to the sublime that gives to railroad passenger work a color and fascination not quickly to be overlooked or forgotten. At all times one meets an ever-changing throng of persons both in high and low stations; both cultured and uncultured; polite and rude; and considerate and unappreciative. Above all, the passenger service and its contacts with the traveling public gives a glimpse into the lives of others; the little intimate glimpses of their trials, worries and pleasures, that are of themselves a liberal education and an advanced course in the study of human nature that should lead to highest honors for the candidate seeking to develop a sense of humor. Without this you couldn't survive.

"I wish some fellow with great organizing ability would teach us how to be inefficient and happy."—*Clarence Darrow.*

Transferring Passengers From Pickwick Bus to Pickwick Airways Plane At Los Angeles for the Flight to San Diego.

A Vice President Takes to the Air

The Threesome Did Look Happy Down Below

By W. J. Kennedy

One of the most candid and funny descriptions of an air trip taken by a railroad man is that written by W. G. Lerch, vice-president of the Chicago Great Western Railway, in that company's monthly magazine. Mr. Lerch discovered one day, recently, that if he depended on ordinary means of transportation he was going to miss an important engagement at Cleveland. "Then," says Mr. Lerch, "just why I do not know, the fool idea came to me that I might fly there."

Hoping to be discouraged Mr. Lerch broached the subject to Mr. Bishop, general passenger agent who had made one flight, and therefore knew all about aviation. Mr. Bishop not only was enthusiastic, but immediately offered to make necessary reservations. Mr. Lerch admits he gulped several times, and then asked Bishop to go with him. This suited the G.P.A., or at least he said so.

The hour of departure came, and the two railroaders hastened to the airport. Down deep in his heart, of course, Bishop was just as nervous as Lerch but concealed it more adroitly.

"I felt that everyone in the crowd at the airport was staring at me," Mr. Lerch said, "and I needed some reassurance the nearer the moment came for me to take my place in the plane. A grumpy policeman gave me no comfort. Men and women were moving about giggling and trying to appear casual and confident.

"Then came the zero hour. There were ten passengers, two of them women. It was the first flight for any of them except one who had been up several times, but they all laughed and talked as if it were the daily routine. As we reached the side of the plane the warming up process was completed and we were ushered into the cabin, our bags being deposited in a rear compartment toward the tail. The time of departure was four p.m. and at one minute to four the cry of 'All ready,' instead of 'All aboard' was heard; the passengers intuitively looked at one another in a plaintive sort of way and hoped for the best. The motors increased their revolutions and slowly we moved off and quickly gathered speed. Farewells were waved to the onlookers. By the time we were 200 yards down the field the plane was moving at 50 miles an hour. Then suddenly with no extra motion or warning up it went into the air and in a jiffy was 300 feet up passing over a golf course where a threesome and two caddies were seen winding their safe way from a green to an adjoining tee. We will not disclose our feelings, but the threesome looked carefree and happy. In another minute it seemed we had swung to our course, were up about 1500 feet and passing just south of South Chicago. Gradually the plane climbed until the altimeter showed a height of 2,100 feet which altitude was kept most of the way excepting when flying over a body of water of considerable size when it rose to 3,100 feet to avoid possible air currents. Nothing had happened yet and we began to look around; everyone seemed to be acting normally so we ventured to glance at the landscape. The houses so far below seemed about a foot high; persons could not be distinguished and automobiles resembled spiders crawling over the roads. What impressed one most was that nearly all of the tracts of land and farms are laid out in per-

Diagram-Sketch Showing Interior of One of the Fokker "Flying Pullmans" Now Building. This Ship Will Accommodate 32 Day-Time Passengers, and Provide Berths for 16 Sleepers.

fect squares and the roads are perfect tangents for miles and where they turn the curves are graceful. The railroads cut diagonally across the country, the prosperous ones being easily picked out by reason of double and well ballasted tracks and long freight trains indicating low grades.

"Looking at the country some distance away, one feels quite at ease but gazing directly down from that plane, a strange feeling seems to arise; you realize the distance you are in the air and what it would mean if you were to fall.

"The day was perfect, the sun shone brightly and the 'ceiling' was high. A light following wind permitted a flying speed of 120 miles an hour. Only occasionally did we run into small air pockets; then the plane seemed to slow up for an instant and quickly dart forward again; or it would settle for a few feet which created a queer sensation, but it was over so soon that these divergencies were hardly noticeable. The riding was as smooth and comfortable as in any Pullman car notwithstanding the plane was traveling nearly three times the speed of an ordinary railroad train. The most noticeable feature of it all was that the plane seemed hardly to be moving and one had an irresistible desire to tell the pilot to speed up. In about fifteen minutes when passing back the pilot pointed to a small village directly beneath the plane and said it was Bryan, Ohio. In twenty minutes more the Maumee River was crossed and we were flying over the suburbs of Toledo, Ohio. The plane was then headed straight for Sandusky Bay and flew along the shore of Lake Erie, passing close to Lorain and Elyria, Ohio.

"We started down from an altitude of about 1,500 feet and it looked as if the ground was coming up to hit us. We flew directly over the airport then made a complete circle, banking the plane sharply which caused the earth to look as if it were nearly straight up and down and the plane flying alongside. The feeling came over us that if we fell out of the plane we would roll down and down the side of the earth. The sensation was anything but pleasant. Then the other turn was made and we were going uphill. Gradually the arc of the circle decreased and we were close to the ground directly in front of the airdrome. The big wheels of the plane hit the ground, and bounded in the air, but due to the recoil springs it was hardly noticeable. A perfect landing was made and the plane taxied up in front of the hangar.

"The distance by air from Chicago to Cleveland is approximately 300 miles; it was made in two hours and fifteen minutes, the speed varying from 114 to 120 miles an hour.

"After it was all over and the two pilots congratulated on the smooth flight, we boldly assumed the attitude of great heroes, scornfully taking a plebian taxicab to the club, where we were received with great acclaim."

How Air Mindedness Grows

It might not have been easy, a year or two ago, to convince the average person that in the entire United States there were a hundred persons willing to risk themselves in a flight across the continent in an airplane. Not a great many men believed the transcontinental passenger business would amount to much. But these men were much like those who scoffed at the automobile as a practical vehicle in the early 90s.

However, and also be that as it may, nearly 600 persons—585 to be precise about it—used the coast-to-coast air-rail services of the Universal Aviation Corpn., the New York Central and the Santa Fe Railway in July, didn't miss a train connection, and landed at their respective destinations right side up, in one piece and perfectly happy. Figures supplied by the western traffic representative, L. O. Kennedy, show the average speed on eastbound flights was 122.5, and on west bound flights 110.9 miles an hour.

Air-mindedness really is becoming national. Correspondence shows, too, that it is quite common among railroad men who, from the very nature of their training, might not be expected to enter enthusiastically into the new development.

Speaking to the Illinois Central Oval Club, one day last spring, C. R. Young, superintendent of transportation for that company at Chicago, said,

"The use of the airplane in commercial transportation service will increase, and to that mode of movement will go the traffic in which great speed is the primary consideration. This traffic, in my judgment, will chiefly comprise, besides mail, passengers and light-weight express and freight shipments. Airplane transportation of mail seems to be outstripping other development in air service, but I doubt that it will ever monopolize the field. The limited lifting capacity of the airplane necessarily restricts the volume of mail which may be transported in this manner. Hence, the railroads are likely to continue handling most of the volume of mail traffic, especially the weighty and bulky items, for which great speed is not important.

"One of the chief factors responsible for the large increase in the carriage of mail by air in recent years is the subsidy of the air mail service by the United States government. It was brought out in recent testimony before a committee of congress that our government is now losing between five and seven million dollars a year on this service despite the higher than regular train rates charged for air mail. The users of air mail get one dollar's worth of service for each 50 cents they pay. The taxpayers of the country many of whom

do not use the air mail service, pay the other fifty cents. The future of any enterprise so heavily subsidized is always doubtful.

"Considerations of economy bid fair to safeguard the railroads against serious loss of freight and passenger business to the airplane. The ability of a transportation medium to transport persons and commodities economically is in proportion to the volume of traffic it can move in one operation at reasonable speed without sacrificing safety. The average capacity of a railway box car is something over 40 tons, and the seating capacity of a modern railway coach is about 80 persons. On the Illinois Central System we are dispatching freight trains from Chicago containing around 70 carloads of freight and passenger trains consisting of twelve to fifteen cars. The capacity of the largest present-day airplane is 4,200 pounds or 20 passengers with baggage. From this it may be seen that it would require 1400 airplanes to carry as much tonnage as one of our freight trains now moves, and about 50 airplanes to move the passengers who can be moved in one of our trains. It is evident, therefore, that the prospect of reducing the cost of transportation by air to the point where it will be as economical as railway transportation is remote."

Its Phenomenal Growth

By E. H. Sharpe

With 9,128 miles of air lines, 291 airplanes, 31 flying schools and more than 2,000 employes the Aviation Corpn. has, in the five months of its existence, become the largest air transport system in the United States. This is the summary of progress reported by Graham B. Grosvenor, president, in a statement to the board of directors. Airplanes of the Aviation Corpn. have daily schedules of over 20,000 miles which represent 25 per cent of the total in the United States and, in the first five months of 1929, flew a total of 2,473,831 miles.

The lines controlled by the Aviation Corpn. include the Universal Aviation Corpn., Interstate Airlines, Inc., Colonial Airways, Inc., Embry-Riddle Aviation Corpn., Southern Air Transport, Inc., and Fairchild Aviation Corpn. The Universal Aviation Corpn. was the first to offer a coast-to-coast train and plane service. The system comprises a network of air routes extending from Boston and New York in the East to Garden City, Wichita, Amarillo, El Paso and San Angelo in the west; and from Montreal, Toronto, Cleveland, Chicago and Omaha in the North to Brownsville, Galveston, New Orleans, Mobile and Atlanta in the South. In addition, these lines serve Albany, Buffalo, Columbus, Cincinnati, Indianapolis, Louisville, St. Louis, Kansas City, Nashville, Chattanooga, Tulsa, Oklahoma City, Dallas, Ft. Worth and others to a total of 62 cities.

Thousands of Los Angeles People Stayed Up All Night to See the Graf Zeppelin Come in From Tokio. The Big Dirigible Made An Unforgettable Impression As It Appeared Suddenly Out of the North at 1:30 a.m. in the Moonlight, and Then Flew About Over the City Until Dawn Before Going to the Municipal Airport.

The system operates 11 of the 25 air mail routes awarded by the Post Office Department, one foreign air mail route and one Canadian air mail route. Air mail poundage for the first half of 1929 totaled 404,239 against 263,193 for the second half of 1928, while air mail compensation showed an increase from $539,985 to $739,573 for a corresponding period.

The corporation has not overlooked the possibilities of the manufacture of airplanes and motors. Already it owns a controlling interest in the capital stock of Fairchild Aviation Corpn., which in turn controls Fairchild Airplane Manufacturing Corpn., Kreider-Reisner Aircraft Corpn., Fairchild Aerial Camera Corpn., Fairchild Aerial Surveys, Inc., and Fairchild Aircraft, Ltd.

Sport Planes By Rail

Two railway carloads of novel sport monoplanes drew in on a specially constructed siding of the Southern Pacific at Los Angeles Metropolitan Airport August 21, and in a few hours had been assembled and were buzzing around over Los Angeles.

The ten new planes are light Ger-

Pennsylvania Railroad Telegraphers Have Been Learning How to Get Up Weather Reports for the Air Pilots.

man-type gliders with small 40-horsepower French Salmson motors on their noses. They are capable of 95 miles an hour, but land at less than 30 miles an hour. The present shipment, valued at $37,500, is the first that Southern California has received by rail directly to an airport, and their speedy assembly by mechanics on the siding platform set a one-day record.

It took less than an hour for each plane to have its undercarriage attached, its wings fitted on and control wires hooked up.

Pilots at Metropolitan had novel experiences in piloting the little ships, flying along beside automobiles and talking to the drivers and landing at slower speeds than an average automobile can make in second gear.

The planes originally were designed as gliders and float along on a head wind with little or no motor power. They have been named Aeromarine Klemms

The Back Seat Drivers' Delight

Back seat driving is an accepted mode in the Aero car, designed for the use of Transcontinental Air Transport, in carrying passengers between the downtown sections and air ports in cities on the coast to coast air-rail route. The rear section, which has a capacity of 14 passengers, has a telephone connection to the driver's seat in the power unit. The telephone set is designed like a radio microphone with the receiving end acting as the loud speaker. Repeated tests of the Aero car loaded to full capacity have shown that it does not decrease the speed of the power unit.

Operators Now Study Meteorology

Old time telegraph operators on the Pennsylvania Railroad now find themselves in the role of weather forecasters for the Pennsylvania's coast-to-coast air-rail service in connection with Transcontinental Air Transport. The operators at points on the Columbus, Cincinnati, Indianapolis, and St. Louis divisions have just completed courses in meteorology, and are now making daily weather forecasts for the benefit of the TAT planes flying over their territory.

The Pennsylvania observers make reports three times daily on local weather conditions, reporting their observations to the meteorological service of TAT. It is this department of the transcontinental air-rail service that keeps the pilots informed by station reports and by radio of weather conditions ahead.

Telegraph operators who make these reports not only must know how to read the thermometer without exaggerating, but must be able to judge wind velocity, estimate vertical visibility up to the cloud ceiling and horizontal distances on the ground. They have to know a cumulus or a cirrus cloud when they see one, and what each portends in the way of weather conditions. TAT meteorologists have just completed several weeks of instruction for the operators who are acting as Pennsylvania observers for the TAT. In addition to the railroad observers, the TAT has its own weather observers distributed all along the line of the transcontinental air-rail route from Columbus, O. to Los Angeles.

Concrete Runways

The only concrete runways in the country are those at Dearborn airport, Detroit. Their use is being studied by air transport operators to ascertain if the landing of planes on hard surfaces increases or decreases the problems presented by turf and cinder landing areas.

Henry Ford, sponsor of the new runways, was a member of the road commission of Wayne county, in which Detroit is situated, when that body voted to build the first concrete road in this country.

To Stop the Noise

A recent invention with tiny propellers catching exhaust blasts and spreading them out from four outlets make airplane motors practically silent, the American Air Transport Association says.

New processes of aircraft insulation were tested successfully when a talking newsreel was taken in a passenger plane high above the San Francisco-Los Angeles mail route. The insulation kept the sound of the motors out of the cabin to such an extent that when put on the projector the film was found to be free of exterior sounds.

Anything New?

It will be as common for a man hereafter to call for his wings when about to make a journey as it is now to call for his boots and spurs.—*John Wilkins* (1614-1672).

A true-bred merchant is the best gentleman in the nation.—*Defoe.*

Aviation's Necessities Have Produced This Little Car for Carrying Passengers From Down Town to the Airports.

Editorial Comment

Why Not An Inspector of Uniforms?

IN WHAT some men now refer to with deep sighs as the olden times, the saloon having the brightest lights, the most sparkling glassware and mirrors, and the niftiest bartenders got the big business. The psychological value of attractively painted and decorated locomotives and coaches has been proved in railroad work. They, too, draw custom. Men and women and perhaps a few Heaven-born children just naturally have greater respect for such things.

This human liking for the bright and clean includes uniforms. Observe the clothing worn by many of the passenger bus attendants and the pilots of the big air liners nowdays. Then take a look at the uniforms worn by the average railroad train crew, especially on the branches. The fact that a branch is not operating profitably should not affect the appearance of a train crew. Their pay goes on just the same, and at the same rate. But a good many of these chaps look like tramps.

Isn't it about time to have inspectors of uniforms worn by conductors, brakemen, flagmen and porters on passenger trains? All these men earn good wages. They should not be allowed to wear the same old uniforms year in and year out. If they can't appear for duty shaved, shined and brushed, they ought to be put on way freight and kept there, or better still, a work train.

A Reason for Thanksgiving

Leslie Craven of Chicago, valuation counsel for the western railroads, said before the Traffic club of that city recently something worth remembering, even if it did rest only on a personal supposition. Of course Mr. Craven was dissecting the O'Fallon decision. This is what he said:

"Had the Interstate Commerce Commission won the O'Fallon valuation case before the Supreme Court, it seems to me that the effect upon the rights of private property would have been so destructive, and their protection so dependent upon the personal equation of the commission instead of legal or Constitutional principle, that government ownership of the railroads would have come about as a result. It is essential that there be developed in our law right conceptions of the powers of these commissions, and the judicial limitations upon them."

What We Want, Mr. McGinnis

The versatile F. S. McGinnis, passenger traffic manager for the Southern Pacific Co., announces the building of ten lounge cars fitted with windows of anti-actinic glass warranted to keep out about 80 per cent of the heat and admit 65 per cent of the light. The new cars will have three coats of aluminum paint, one inside and another outside the inner metal sheet, and one coat for the exterior finish, something distinctive in paint jobs. The heat-resisting glass, product of an English factory, has not been used heretofore in the cars of any American railroad but has been successfully employed on trains in tropical India and Africa, according to reports. Ten of the new lounge cars are nearing completion for the Southern Pacific Company at a cost of $600,000.

Maybe this anti-actinic glass is the thing we have been waiting for these many years. We certainly hope so. But the energetic Mr. McGinnis will have to contrive cars fitted with Frigidaire before we resume traveling in the summer. Seriously, the railroad that produces cars so equipped will cause a riot. Theaters are cooled. One-half of a baggage car would hold all the equipment needed to make passenger coaches habitable in the hottest months. Why not, Mr. McGinnis? That's what we want.

The Zeppeleen

Ever since the first of the ships appeared invented by the late Count Zeppelin we have been pronouncing the word just as it is spelled, and although we have been associating with aviation folk for quite a while no one ever said we were wrong. But at the complimentary banquet given the officers and passengers of the Graf in Los Angeles it was noticed that Doctor Eckner and his companions said "Zeppeleen." The matter is not of grave importance, but as the new conductor said when he lost his orders, there's no telling when such things may be needed. Zeppeleen, if you please.

Meaningless Billions

The transportation machinery of the United States is said to be worth $60,000,000,000, that is to say sixty billion dollars. Spelled out or divided into millions the figures mean nothing to any human being, not even to Dr. C. S. Duncan, economist for the Association of Railway Executives, who used them recently in addressing the Institute of Politics at Williamstown, Mass. Such fabulous sums are pleasant to roll over the tongue, and they are mighty in their impressiveness, but they don't mean a thing. Men who turn a flip-flop and roll over in great glee at the discovery of a new statistic, like a kitten with a catnip-mouse, gloat over these billions never realizing that this magnitude itself is responsible for the public's misunderstanding of the railroad question. Doctor Duncan used up a carload of cyphers in his interesting address at Williamstown.

"For railroads," said the economist, "the book investment is upward of $25,000,000,000; for motor vehicles and improved highways, the reported amount for the former represents more than $20,000,000,000 and for the latter more than $10,000,000,000; for waterways, hundreds of millions more; for electric lines hundreds of millions still; for airplanes rapidly increasing millions more. Certainly $60,000,000,000 would be a conservative figure for capital outlay for transportation facilities. Next year will see the increase of more than $2,000,000,000 in addition."

Unfair to the Commission

Speaking recently of the O'Fallon decision and its probable effect on rates, M. L. Countryman, Jr., general attorney for the Northern Pacific Railway, said it had been suggested in some quarters that the decision promises no real protection to the prosperous carriers because the Supreme Court leaves to the Interstate Commerce Commission the determination in individual cases of the weight to be given to evidence as to present day costs of construction. It is suggested that the commis-

sion can evade the spirit and intent of the Supreme Court's decision by actually disregarding such evidence, concealing its real reasons for doing so by offering fictitious reasons. I do not agree with this view. I have the highest regard for the honesty and integrity of the personnel of the Interstate Commerce Commission, and I believe it will honestly weigh and consider the facts in each individual case and will give effective weight to present day costs of construction in individual cases where the evidence shows the properties are well conceived and well located, and reasonably worth what it would cost to rebuild them."

Like any body of men the Interstate Commerce Commission is not perfect; it has its boneheads, and it has made some canary bird decisions, but it is a body of honorable men rather carefully selected. Railroad lawyers occasionally find this difficult to believe, but nevertheless it is true. The commission members are not shyster lawyers. They have never done anything to convey the impression that they are friendly to railroads, but still they are gentlemen. Such criticism or suspicions as those mentioned by Mr. Countryman as having been "suggested" are unfair, and will have no weight with persons who know the commission personnel. This department has felt at times that where a railroad was involved the commission has, occasionally, overlooked the Constitutional assumption of innocence before calling the room to order, but as in the case of the commissioners, there is always the chance that we are wrong, however reluctant we may be to admit it.

In the O'Fallon case, the commission evidently feared rates based on the old Smyth vs. Ames precedent might hurt business, and apparently tried to trust to its own judgment. This seems fair enough except that the Supreme Court did not put much faith in that judgment, and told the commission its duty was to obey the commands of congress. If it does this it can make mistakes enough.

The Zeppelin Banquet

The officers and passengers of the world-touring Graf Zeppelin were entertained at a banquet—or at least they were there—in the evening of the one day the big airship remained in Los Angeles. As might have been expected there were speeches. Practically everyone in the Ambassador except the bell captain was on the program. Doctor Eckner, always serious and always interesting, spoke so charmingly of such important things that his halting English was wholly forgotten. The best address of the entire evening, however, and there were many, was by a Japanese gentleman, a passenger on the Graf. This smiling foreigner knew not one word of English. When he was introduced by the toastmaster he rose, waved his hands delightedly, exclaimed "banzai," and resumed his seat amid deafening applause. The speeches about Los Angeles were then resumed.

For Knowing Their Work

The average airplane pilot of a regularly scheduled American air transport line earns $5,556 a year, and works an average of less than two and one-half hours a day. This statement is made by the aeronautics branch of the United States department of commerce in a preliminary report of the operations of air transport lines for the latter half of 1928. The figures were compiled from the records of the 25 major air transport companies in the country, who during the period covered by the report, employed 275 pilots, probably the pick of the transport pilots in America, outside of the army and navy. The same report showed that the average pilot during the six-month period flew a total of slightly more than 20,000 miles, or an average of about 40,000 miles a year.

Certainly Some Service

The Southern Pacific agent at Glendale, a suburb of Los Angeles with 75,000 inhabitants, has developed the novel idea that his job is to accommodate the traveling public! A man in a motor car rushed up to the station a few days ago just in time to catch a train for the North. "Sure," said the agent, "I'll check your car. Give me your name and license number. When are you going to want it again; I'll have it here ready."

Nearly every day, in this radio-mad, hit-and-run pagan world there is reason for rejoicing.

For a Quiet Session

In the newspaper or magazine business it is not considered good manners to try to be funny in referring to anybody's misfortunes. However, Senator Shipstead of Minnesota is so ill that he is said to have given up the idea of attending the next session of congress, and has gone into camp on an island in the Rainy Lake regions north of the Canadian boundary at International Falls. What an interesting vacation he might have if he could induce Nye and Fraizier of North Dakota, Dill of Washington, Brookhart of Iowa, La Follette of Wisconsin, and Tom Heflin of Alabama to be his guests for a year or two.

The Indolence of Government

"Government ownership," said Henry Swift Ives, "is the product of loafing minds and loitering ambitions. It is the indolent offspring of a static mind. As a theory, it lacks imagination, originality, inspiration and romance. As an actuality, it is a stupid, dull languorous method of carrying on the work of the world. It is the substitution of government deficits for private profits. It is a stubborn barrier to industrial progress. It is the Santa Claus idea of government, heralded by political sleighbell ringers. It has never created anything except jobs. It is destructive of growth of wealth and productive of growth of debt."

The Edison Pioneers

A little group of men, most of them past the threescore mark, will go to Dearborn, Mich., next month, as guests of Henry Ford. They will attend Light's Golden Jubilee, the celebration in honor of Thomas A. Edison and the fiftieth anniversary of his incandescent lamp. The celebration will hold special significance for them, for they are the Edison Pioneers, an organization like no other in the world. A small remnant of the glorious days of great achievement brought together solely by sentiment—the Edison Pioneers serve no purpose but to honor the man who has always been a hero to his associates. They wish no more than to keep alive precious memories of those hard driven days when the faith and loyalty of his staff stood between the genius of Edison and the doubts of the world.

To Dearborn they will go then, from all over the United States and from points in Europe. Henry Ford, their host, is himself a Pioneer. Less than 40 years ago, Ford, clad in overalls, was an employe of the Edison Central Station in Detroit at a very moderate wage.

Many pioneers who began their business careers in the Edison laboratories, are now men of important affairs. Others, however, are living in retirement and because of the infirmities of age will not be able to attend the Dearborn festivities. The organization has about 250 members.

Although there is only the one meeting during the year, the headquarters of the Edison Pioneers at 40 West 40th street, New York, is open every day, except Sunday. It has become the mecca of all Edison Pioneers whenever they reach New York. Presided over by Frank A. Wardlaw, secretary, since 1921, this office has meant many things to many members. It is above all a place where there is always a cordial welcome and warm friendliness.

This Inventive Age

Writing about the trend of invention recently Roger Babson said the whole character of invention is changing. While most of the great discoveries from 1800 to 1870 were in machinery lines, the great inventions and discoveries of more recent date have largely fallen into two classes: (1) electrical and (2) chemical and metallurgical. Already there are 5,000,000 radio-receiving sets in this country. Pictures are sent by radio and the radio motion picture is being perfected. The beam radio, if it can be perfected, will make it possible to distribute power along a beam to distant places where wire lines can't go, or to ships at seas or airplanes.

"I have been very careful about general predictions regarding airplanes, but I expect great things," says Babson. "The industry cannot be built up overnight. Safer and better planes are being built, and suitable landing fields and marked airways are being laid out. I think the real development of the air awaits the perfection of some device that will enable a plane to land in a smaller space, with certainty and safety. More than anything else we need some construction like a helicopter which will apply power for quick vertical ascent and provide a brake for slow vertical descent.

"Thousands of acres of beautiful country, the best in the world for sport and recreation, can now be bought for a song because they are not easily accessible. In the Canadian provinces, and even in the United States, huge forest reserves are offered practically for unpaid taxes. Sooner or later the airplane will bring this property within a few hours of the great cities."

Government Ownership in Mexico

It seems rather an unkind thing to say about one's own country, but really there is nothing in the record on which to base the hope that railways under government ownership in the United States would be managed any more decently, efficiently or profitably, than they have been in the Republic of Mexico. With this thought in mind it seems important to draw attention sharply to the amazing disclosures about those roads in the National Transportation convention in Mexico City, last month. We need no longer irritate railroad men in Canada when seeking the horrible example. Sir Henry Thornton may leap gracefully aside when he encounters such disagreeable things as taxes and interest in his public addresses, but at least we do know he is doing real railroading and giving the Canadian people the finest service they ever have had.

The Mexican government owns something more than 50 per cent of the railway system and private investors, mostly outside of the republic, own the remainder. These outside victims also own bonds and other evidences of indebtedness—more than the government owns—and they have been hoping that when the government sold a large part of its ownership the old bills would be paid. No such hope now exists. "The National Railways and their connecting lines," said the report from the Piedras Negras chamber of commerce, "are on the brink of disaster."

The troubles on these Mexican railways are familiar on practically every government-owned railway system. They existed in Canada until Sir Henry went up there, but now, as far as it is humanly possible to prevent it, politics has no influence on Canadian railroads. In Mexico the reverse is the rule. On the Mexican system there are 21 directors, 12 of them representatives or other office-holders of the government. Operating expenses have been outrageously high, and the full crew idea has been worked to a fare y'well. There were 46,000 persons on the pay roll last year with a wage bill of 68 million pesos, against 35,000 men and a pay roll of 32 million pesos in 1920. A peso is worth about 50 cents American.

In defending the management against attack in the convention the superintendent of traffic said, in part:

> As long as the railways are obliged to maintain a personnel three times larger than necessary, as long as they are obliged to pay receipts that are not theirs, as long as they are obliged to pay rentals they do not owe, and are obliged to retain every man on the payroll, the situation cannot change.

Helping to Build Men

This magazine completed last month a series of articles showing the work done by European railways in helping to educate young men eager to take up railroading as a life work. In the present issue appears an article by F. W. Thomas, supervisor of apprentices for the Santa Fe Railway at Topeka, emphasizing the importance of proper reading for these students of transportation. It is hoped that in the coming months it may be possible to publish plans and suggestions from many American railroad men touching this important subject.

Special attention is directed, in this connection, to the re-printed discussion of a report by the Committee on Co-operative Relations with Universities, presented in the 30th yearly convention of the American Railroad Engineering Association. This discussion may be found in the association's bulletin for June, this year, and should be studied by every man disposed to assist in such laudable work. Unfortunately the discussion is too lengthy for reproduction here. As might be expected it is given over very largely to the engineering aspect, but the education of young railway men must be arranged to include many branches, pretty nearly all of them at present neglected. The subject is receiving the keenest attention from electric railway men, and from quite a number of the principal railroad officials as well. But in the main it is indifferently managed. One thing is rather clearly evident: If the rising generation is to compete with automatic machinery and the other marvelous developments of science in this age it will be necessary to produce men more thoroughly educated than in the past. And this demand will by no means be confined to engineering. It will take in the whole field of transportation, and this, it should be remembered, describes a situation and a condition vastly different now than a generation ago. It is by no means inconceivable that in a few years, so fast is science working, only the technically, scientifically trained man will be in demand in transportation.

A Truck for Airplane Service

By L. E. Ravenscroft
U. T. P. A.

For some time sketches of queer looking objects have been on the drafting tables at Wright Field in Dayton, O., in that corner of the equipment branch dedicated to transportation projects. Those drawings have now partly materialized into two huge vehicles for airport service, one a heavy duty re-fueling unit, the other a giant wrecking truck still under development. Both vehicles are intended for standard airport use. By means of these new mechanisms, it is said, the work of re-fueling planes and salvaging wrecked ships will be revolutionized.

The re-fueling truck is the largest the air corps has ever had. Its capacity is 1200 gallons of gasoline, and 100 gallons each of oil and water which may be heated by exhaust coils installed in their tanks. Heretofore the greatest amount of gasoline carried in any standard type of truck was 350 gallons. By comparison of quantities one can visualize the size of the new unit which, it is estimated, can service in 24 minutes three planes each requiring 300 gallons of gasoline, 30 gallons of oil, 25 gallons of water and sufficient air for the tires.

The truck is fitted with air compressor, power and hand-operated pumps, filter and meters. The compressor is driven by the truck's engine, the compressed air being stored in tanks for future use in filling tires. Supplies of gasoline or oil may be taken directly from the field's storage tanks or from pipe lines leading from the tanks to a convenient point on the field. When the truck has been loaded with compressed air, gasoline and oil from the storage supply, and with water obtained from any available source, the truck is run out to the airplane to deliver the required supplies which is accomplished by forcing them into the plane's tanks through hose lines by air pressure or power or hand pumps. An enclosed rack for carrying hose is provided on one side of the unit, and there is a similar compartment for carrying miscellaneous equipment on the other side. All valves for operating the various systems are grouped, and full instructions for operating them are engraved on brass plates. The chassis is a Coleman six-wheeled type provided with 42 by 9-in. pneumatic tires all around. The old type large trucks were always hard to steer. These new trucks drive very easily through all six wheels.

This Is the New Airplane Salvage and Service Truck Designed At Wright Field, Dayton, Ohio.

The wrecking truck, now under development at Wright Field, is being built on the same type of six-wheeled chassis as the servicing truck. However, it will be equipped with a hand-operated crane with a capacity of two tons for loading heavy equipment or changing engines. This truck will be 18 ft. long, 7 ft. wide and will have a capacity of five tons. It will be used for transporting new or wrecked airplanes, and as a cargo truck for carrying large quantities of gasoline and oil in drums. Its giant proportions are a necessity inasmuch as it will be required to operate on unlimited cross-country missions in reaching scenes of crashes. So large will be this new item that either the wings or fuselage of a bombing plane may be mounted on it.

Block Signals in 1928

Automatic block signals during 1928 were completed on 3,121 miles of railroad, an increase of 752 miles as compared with the annual average for the past ten years. This work is in line with the established policy of the railways steadily to improve their facilities so that they may continue to provide fast and dependable service.

Of the 3,121 miles equipped with automatic block signals in 1928, more than 2,156 miles were on single-track, 893.4 miles on double-track, 70.4 miles on three-track and 1.6 miles on four-track lines.

Increased attention was also given during the year to the application of signals and power switches whereby train stops were eliminated and movements directed by signal indication without written train orders.

Interlocking construction for 1928 included 88 new plants of which 24 were mechanical, 33 electrical, 8 electro-pneumatic and 23 electro-mechanical.

Automatic signal protection for grade crossings, termed automatic interlocking, was installed at 40 crossings last year as compared with 31 in 1927. All during the year the railroads continued an active program to provide automatic highway crossing signals—a total of 2,254 being installed which was an increase of 69 over 1927. Of these 676 were wig-wag type and 1,578 flash-light type. Many installations were at crossings where no protection had been provided previously, while at others the new devices afford 24-hour protection where formerly the crossings were guarded only 12 or 16 hours a day.

Refund for Tax Error

The New York Central wants, and will get, 80 cents from the town of Greenburg, N. Y., in settlement of a claim that the company's right of way, where it passes through the Greenville lighting district, had been excessively assessed in this year's tax bill. Investigation proved that in copying the valuation of the property in question, $3,042 was put down this year instead of $2,042, and that the $2.90 tax levied should be reduced as demanded. The town board ordered the refund.

A Truck System for Farm Products

By

W. R. Ballinger

—Herbert Photo

Hampstead Heath, London, Opens a 50-Car Garage in a Famous Old Church Whose Members Seem to Have Joined the Motoring Sunday Throngs.

MOTOR TRUCK systems for transporting perishable farm commodities to markets from producing regions within a radius of 250 miles and for distributing produce from large markets to smaller towns within a similar area is predicted by marketing officials of the bureau of agricultural economics, United States department of agriculture. The establishing of motor trucking systems as feeders to railroad concentration points for long hauls is also regarded as a possibility.

Although there has been a rapid increase in the use of motor transportation of farm products in the last few years from established producing areas and from new growing regions formerly outside the range of wagon haul to cities, the motor transport business from farm to market is as yet practically unorganized and for the most part is in the hands of independent truckers. More or less organization already exists, however, in the distribution of produce from cities to small towns.

The government marketing officials believe that as in the case of motor bus and airplane transportation it is only a question of a short time when the railroads which have been facing increasing competition in motor truck transportation both from producing areas to consuming markets and in the distribution of produce from cities to small towns will organize transport systems which will give shippers and dealers a unified service.

Motor truck transportation of fruits and vegetables has become so large a factor in the handling of the nation's food supply that the bureau of agricultural economics is now reporting motor truck receipts in its daily and weekly market news services at seven large consuming markets: New York, Boston, Cincinnati, Denver, Salt Lake City, Los Angeles, and Portland, Oregon. The reporting of rail and boat shipments en route and those expected to arrive at markets within the ensuing 24 hours has been one of the important features of the bureau's market news system which has enabled shippers and dealers to estimate probable market supplies, but no method has been found as yet for making similar reports on motor truck shipments.

The unorganized character of the motor truck business in fruits and vegetables makes it practically impossible for the bureau to ascertain en route shipments, save in unusual cases such as out-of-state shipments from Delaware where the movement northward passes through a virtual "bottle neck". The situation is complicated further by the more or less general appearance over the country of itinerant peddlers who buy truck loads of farm produce in say Florida or Colorado to be retailed in less than carload quantities to grocers in small towns in other nearby states.

A survey shows that during the

The Central of Georgia Put This Specially Designed Vehicle Into Service to Replace Steam Service. It carries Mail, Freight and Passengers.

marketing season of 1928 the shipments of fruits and vegetables by rail and boat aggregated 44,616 carloads as compared with 5,862 equivalent carloads reported by motor truck. It is assumed that these motor truck records represented only 80 per cent of the total motor truck shipments, which would make the total movement 7,327 equivalent carloads of fruits and vegetables by motor truck, or 14 per cent of the total movement from the area.

The motor truck movement from the eastern shore of Virginia was equivalent to approximately 811 carloads, compared with 2,421 for the eastern shore of Maryland and 2,391 for Delaware. These figures are exclusive of reported mixed truck loads of fruits and vegetables equivalent to 239 cars. The survey disclosed that motor truck transportation is favored especially in connection with the movement of the highly perishable and more expensive commodities.

Strawberry shipments from the eastern shore section by rail and boat last season totaled 2,121 carloads compared with a reported motor truck movement equal to 2,396 carloads. Available records indicate that in 1926 the rail shipments of strawberries were 2,862 cars compared with 1,086 "carload equivalents" reported by motor truck, thus showing a large increase in the use of the motor truck during 1928.

The ease of handling motor truck shipments is the chief reason given by shippers for the increasing use of this means of transportation. The truck is loaded at the farm and transported direct to dealers' stores in consuming markets. Delays incident to hauling to rail shipping point and of unloading into trucks at receiving markets are eliminated. The principal advantages on the eastern shore are reported to be the saving in time of transportation; elimination of extra handling at destination and for some crops at shipping point; elimination of the necessity for icing shipments of highly perishable commodities, and the establishing of closer contact between shipper and city dealer.

The chief disadvantages are the inability of city dealers to determine in advance the available supply on the market on any day as accurately as in the case of shipments by rail and boat; the inability as compared with highly perishable commodities arriving in refrigerator cars to hold over the truck shipments when market conditions are unsatisfactory; the depressing effect upon prices when an oversupply of truck shipments must be sold immediately or placed in storage, and lack of uniform trucking rates.

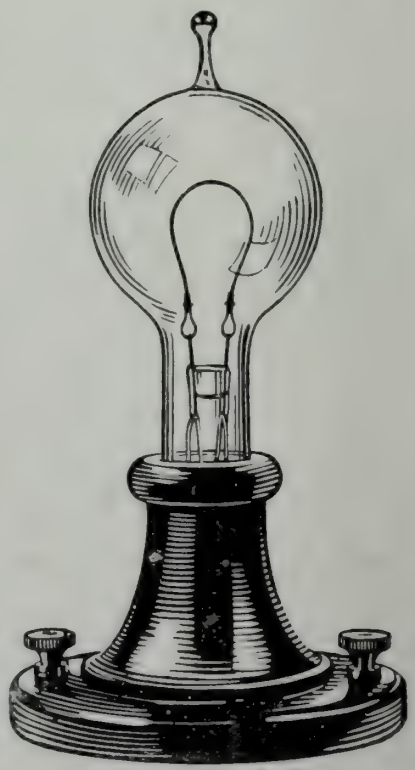
B & O Motor Popular

Because of the increasing popularity of the trainside motor coach connection service the Baltimore & Ohio maintains in New York City, and in order to provide more convenient facilities for the West Side, a new motor coach station has been opened in Columbus Circle at Central Park West, in the American Circle Building. The Columbus Circle station is the fourth established in three years by the Baltimore & Ohio in greater New York, connected with the motor coaches between the stations and trainside in the Jersey City Terminal. These are the Waldorf-Astoria station, 19 West 33rd street, near Fifth Avenue; the 42nd street station on the ground floor of the Chanin Building at 42nd street and Lexington avenue; and in the Central Building at Joralemon street, Brooklyn, in addition to the new terminal at Columbus Circle.

Can You Remember This, 50 Years Ago?

Meet the miracle of 1879, Thomas Alva Edison's first practical incandescent lamp, or at least a very close likeness of it. Thousands of these approximate replicas of the great inventor's pioneer lamp are now being manufactured by the leading makers of the country for distribution to electrical dealers, central stations, electric leagues and others throughout the land. This lamp, though quaint, will burn, and is to be used as part of countless window and counter displays calling the world's attention to the fact that this is the 50th anniversary of Edison's history-making discovery and that "Light's Golden Jubilee", celebrating the occasion, is everybody's opportunity to participate in a world-wide expression of gratitude, to the greatest inventor of all time.

It is expected that this facsimile, so unlike the modern inside frosted lamp of today, will arouse no end of curiosity in the public mind. This facsimile lamp will be sold at cost; namely, 90 cents.



Replica of Edison's First Incandescent Lamp.

The Model Lumber Town is Longview

By C. W. Geiger

Longview Passenger Station, Rear View, Showing Garden Spots Arranged by This Modern Industrial Center of the Northwest.

THE CONSTRUCTIVE influence of R. A. Long, one of the outstanding business geniuses of the Middle West, is seen in the complete and artistic structures and facilities of the Longview, Portland & Northern. This is a thirty-mile stretch of railroad extending from Longview, Wash., 30 miles north to Hyderwood, the center of logging operations of the Long-Bell Lumber Company.

This road connects with the main line tracks between Seattle and Portland, used jointly by the Northern Pacific, Great Northern and Union Pacific, at Longview Junction, a few miles south of Longview, crosses the Cowlitz River by a four-span steel draw-bridge, comes into Longview, and then proceeds north on the west bank of the Cowlitz, connecting again at Olequa, 20 miles north of Longview, with the main line tracks, which have paralleled it up the Cowlitz Valley on the east side of the Cowlitz River.

The primary purpose of Mr. Long's railroad was to supply a rail connection between Longview and Ryderwood to bring logs from Ryderwood to the mills at Longview. However, it was built with the thought that sooner or later the three main lines would route some of their trains between Portland and Seattle over this road, thus giving Longview direct train service, instead of its people being obliged to go to Kelso, which is one mile distant. The Interstate Commerce Commission granted the railroads' request for this move and through train service was established July 14, 1928, Longview getting four of the eight trains daily.

The road is first class in every way from the standpoint of construction. Its curvatures, grades, trestles, steel and right of way all measure up to the highest railroad standards. Ryderwood, the company's logging center, is a model logging town in every way. Here are hundreds of neat homes with modern conveniences, stores, a church, a school, a community house, a hospital, theaters. Ryderwood was built with the idea that it would be a permanent logging center, and it has been supplied with such conveniences that it is attractive to family men, thus making it possible to employ a high percentage of married men in the woods operations. These men go and come from their work morning and night by railroads which extend in a network into the woods nearby.

The lumber manufacturing plants of the Long-Bell Lumber Company at Longview, Wash., are said to be the largest in the world both from the standpoint of space covered by buildings and in daily and yearly production.

An interesting feature of these plants is the ship dock with a total length of 2000 feet, which will accommodate six ocean vessels at one time. The dock has ten acres of storage space and estimated storage capacity of 20,000,000 feet. It is equipped with an electrically operated, self-propelled hammer-head crane having a working radius of 100 feet. The minimum depth of water at the dock is 30 feet. This dock is provided with ample mechanical and other facilities for making proper separation and giving quick dispatch in shipping lumber.

The railroad timber dock, 1250 feet long, is equipped with two 75-foot bridge cranes, lumber carriers, monorail, and sizer to handle timbers 20 by 30 inches. It has a storage capacity of five million feet. Here the timbers to be shipped by rail are assembled in packages for more economical storage and loading on cars.

All buildings of plant, dock and

storage yard are brilliantly lighted with electricity for night operation.

The Northern Pacific, Union Pacific and Great Northern jointly use a double track right of way between Portland and Seattle, operating five trains each way daily. That was the situation when Longview was founded. And it was the case up until July 14 last, when the three systems put in a new schedule routing two of these trains each way daily via Longview. Previously to this Longview had to go to the railroad station at Kelso, about a mile distant from the business district of Longview, to get on these trains, and mail and express addressed to Longview was delivered at Kelso. Because of the growth of Longview, the railroads felt that the town should have direct train service. The Interstate Commerce Commission granted permission for four trains daily to move through Longview instead of Kelso. All these trains stop at the Longview passenger station.

The Longview, Portland & Northern connects with the main line tracks at Longview Junction, a few miles south of Longview, crossing the Cowlitz River by means of a four-span steel draw-bridge, running parallel with the main line tracks on the west side of the Cowlitz River through Longview, and on north through the Cowlitz Valley to Olequa, a distance of about 20 miles, where the main line tracks are joined again. As the Longview, Portland & Northern is a standard gauge line this change worked no hardship on the railroads, inasmuch as the distance was practically the same as it is for the trains which go through Kelso.

An Album for S. P. Enginemen

The Southern Pacific, in 1922, adopted the plan of sending to the annual convention of the International Railway Fuel Association, as company delegates, the engineer and fireman from the twelve operating divisions leading in the economical use of fuel for the year, paying them for time held off their runs, all expenses incurred incidental to the trip, and their membership in the association. During the past eight years since then many enginemen have attained this honor, and many have repeated in subsequent years in face of the strongest kind of competition.

As a further mark of appreciation for this efficient and meritorious service, a beautiful loose leaf album has been presented to these men as a keepsake reminiscent of their loyal and devoted support of fuel conservation, and as a memoir of their past achievements. The album contains group photographs of delegates for all the years with a message from the president expressing his deep appreciation and sincere personal gratitude for the full measure of industry, care and management which enabled them to distinguish themselves so prominently.

The book also contains photographs of executive, operative and mechanical department officials, and pictures of the three superintendents whose divisions received recognition in the form of a permanent trophy cup award for division excellence in fuel conservation. These superintendents are: G. E. Gaylord, Stockton division (two awards); C. F. Donnatin, Salt Lake division, and E. R. Anthony, Coast division. The trophy cup award is made quarterly and the division winning it three times takes permanent possession of it.

The album also contains the photographs of the three engineers who have made the most outstanding records in fuel economy, namely: C. E. Grass, Stockton division; J. R. Falvey, western division, and W. E. Stoermer, Los Angeles division. These engineers are the only engine service employes on the Pacific Lines who have been leaders on their respective divisions, in fuel economy, for 13 or more quarter years, and are the only men who have been successful in winning the convention trip in six consecutive years.

The system of awarding gold cap badges quarterly to the four engineers and four firemen leading their divisions in fuel economy was initiated in 1921. Subsequent awards were made by inserting gold and enamel stars in the badge until the thirteenth award, when a diamond replaced the center star in the badge. The three men mentioned are the proud possessors of diamonds in their badges. The

Ocean Freighters Loading Lumber at the Long-Bell Docks on the Deep Columbia River at Longview, Wash. Much of This Lumber Goes to the Atlantic Coast and to Australia and Japan.

A Longview, Portland & Northern Train of Logs, Pulling Into Longview. This Important Industrial Line is Only 30 Miles Long.

album lists all engineers and firemen who have won gold cap badges, indicating after their names the number of successive awards.

Well, It May Come To This

One hears plenty of complaint here that the motor car is cutting into the business of the railroads, but this competition has not yet reached the stage where the railroad stations are being rented out as practice rooms for orchestras and headquarters for the local boy scouts. Stations on the less important branch lines of certain English railroads have recently been put to these uses and others equally strange, because the small number of passengers no longer requires the entire space of the buildings as they were constructed in past years. At Hull, the station has been partitioned off and part of the space rented to the district engineer, and at Darlington unoccupied space has been converted into small garages, the revenue from which aids the road in the upkeep of the station.

Passengers Discharged But No Stops

British express trains traveling at a mile a minute speed discharge passengers without stopping by means of "slip" coaches, according to London reports to the department of commerce. By means of this "slipping" apparatus, coaches are detached en route and siderailed into the station, the main portion of the train proceeding at high speed to its destination. In this way a large number of daily additional express facilities have been made available to the traveling public.

Although only one "slip" portion is carried on the train as a rule, in the case of the Cornish Riviera Express on its daily run from Paddington to Plymouth three separate sets of coaches are slipped en route at Westbury, Taunton and Exeter respectively, thus giving services to a large number of places short of the first stopping place of the main train. The Cornish Riviera Express is the only train in the world to perform this feat.

Why Some Men Go Mad

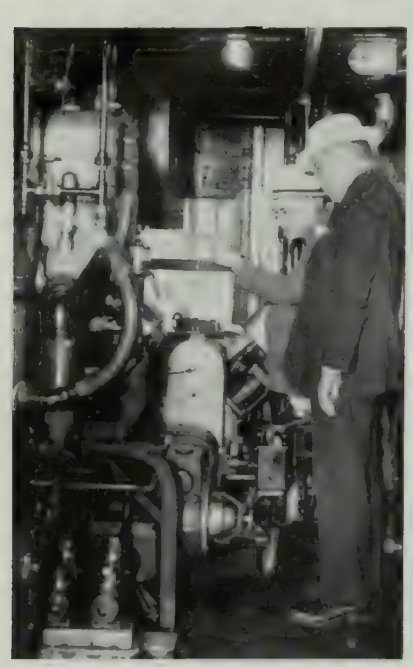
The ticket office men and those engaged at the information desk at the Union Station in Washington have their troubles typical of why they grow old and possibly became baldheaded. For example a man came up one day and said "Does the next train stop at Blankville?" "No, sir, it is the express train." "Don't the express train stop there?" "No sir, it goes past." "How much is the fare?" "One dollar and a half." "When will the next train go that stops at Blankville?" "At 4 o'clock, sir." "Why doesn't the express train stop there?" "Because it goes right through." "Does it never stop there?" "No, sir, never." "Will the train that starts at 4 o'clock stop there?" "Yes, sir." "There's no danger of its going past without stopping, is there?" "No, sir." "It isn't the express train that goes at 4 o'clock, is it?" "No, sir." "Why don't it?" "Don't know, sir." "Will this ticket take me to Blankville?" "Yes, sir." "Does the train stop anywhere between here and Blankville?" "No, sir." "I couldn't get off anywhere between here and Blankville for a few minutes, could I?" "No, sir." "What time does the train start?" "Four o'clock, sir." "It will be sure to start on time, will it?" And the station employe's wife probably wonders why her spouse talks in his sleep.

"There" said the wife angrily, "I knew your new friend wasn't honest. One of our towels is missing."

"Was it a good one?"

"The best one we had. It was the one with Grand Palace Hotel on it."

I wish every immigrant might know that Lincoln spent only one year in school under the tutelage of five teachers, and that that man still could be the author of the Gettysburg address.—*Dr. John H. Finley.*



Left, W. M. Ryan, President, Ryan Car Co., and O. N. Harstad, Gen. Mgr., Milwaukee Road.

A Locomotor for the Milwaukee

A NEW and unique high-pressure steam engine that seems likely to maintain the supremacy of steam for transportation purposes in many important divisions of the railway field, where electrification or motorization has been considered, has been acquired by the Milwaukee road. This new type of motive power is named in honor of its progenitor, the locomotive, and is called the "Locomotor", the first of which went into service on the Milwaukee the middle of August, according to announcement of J. T. Gillick, vice-president of the railroad company.

The development of the Locomotor has covered ten years of work in the laboratories of the International Harvester Company. During the last three years practical service tests have been made in conjunction with the Milwaukee road by the Harvester Company and the Ryan Car Company, which organizations are putting it on the market.

To all outward appearances the Locomotor resembles a modern steel baggage car. It is 61 feet long and weighs 117,000 lbs. Steam is generated in a small compartment in the forward end of the car where the controls are situated. The engines themselves are fastened under the car to permit the floor space being used for baggage, express and mail. The number of coaches that can be hauled by the Locomotor is determined by the schedule to be maintained and the grades encountered in the territory where it is to be operated.

The new unit uses steam at 600-pounds pressure, which is about three times the normal pressure of the modern steam locomotive. Steam is not stored in any large quantity but is made only as needed. The fuel is either distillate or ordinary furnace oil, automatically fed, and is burned so completely that there is no smoke. Unlike gasoline exhaust, the gases from the burned fuel are not poisonous. The steam itself is condensed and the recovered water is used again to make steam.

Power is applied to both rear and forward axles without the interposition of transmission gears. Journals are of the new roller-bearing type, enabling the car to be started with a minimum of tractive effort, and without noise or vibration.

The Reward of Courage

There is as much romance in railroading today as there was in the days of the empire builders. There are few small boys who do not cherish an ambition to become either an engineer or a brakeman. The bravery of railroad men has been extolled in song and story. Heroism is not forgotten on the railroads.

Brave deeds are performed daily, some of them unnoticed, or modestly disclaimed. For outstanding feats of gallantry, however, rewards are given, and the railroad worker of today has as much reason to be proud of his calling as ever.

Congress passed an act in 1905 authorizing the President to award medals of honor to persons who perform "feats of bravery in connection with the saving of life on the railroads." This act made it one of the duties of the Interstate Commerce Commission to consider recommendations for the award of medals, decide what acts of bravery merited government recognition, and to inform the President of the commission's investigations. The President himself has final authority over the awards.

Since 1905 the commission has decorated 30 persons. The 31st medal was bestowed recently upon Olney D. Ball, of Globe, Ariz., for saving the life of a small boy who had chosen a railroad track as a pleasant place to operate his tricycle. Ball, standing on the caboose platform of a rapidly backing train, saw the child on the track. He swung to the ground when the train was six feet from the child, depending upon his momentum to carry him forward, snatched the child in his arms and jumped clear of the tracks.

George H. Powell, a fireman, saved a two-year-old boy from death by going out on the pilot of his locomotive and snatching the child just as the train reached him. Powell broke both arms, and one of his feet was so badly injured that amputation was necessary. But the child was uninjured.

What Is the Wage Scale?

The Ceylon Government Railway, originally less than 100 miles in length, has grown until it now comprises 704 miles of main lines, 278 miles of branches and 143 miles of sidings. Heavy increase in motor transportation in the islands is said to have affected the revenues of the railway to a large extent, but a system of feeder buses and rail-motor cars has been effective in meeting competition.

The Milwaukee Buys a Locomotor, Steam-Propelled; No Smoke, Gas or Noise. Burns Oil.

Little Stories About Big Men

SOME WRITER with a flare for the picturesque said in one of his pieces a while ago that Daniel Upthegrove, president of the Cotton Belt, otherwise the St. Louis-Southwestern, began his business career as a small-town lawyer in Texas where he was born, that he always has and still does wear suspenders, and furthermore that he talks like a man who wears them.

Greenville, Hunt County, Texas, may have been quite a small town in 1871 when Daniel Upthegrove entered an appearance there. It is a pretty husky place now, however, with about 15,000 population, and the man who doesn't call it a city is likely to find himself in bad. We can pass this part of the story, but we object to the theory that Mr. Upthegrove's suspenders cause him to use language different from that of persons in belts unless, of course, the things should chance to break.

Indeed, there really isn't anything in this idea. Some persons are built for belts and some have to wear suspenders, and in Texas, as in any other state, they speak much the same language. The people have more time down south, or at least they take more of it to say something. Some times they affect a drawl, but the truth is you might be in Houston or Fort Worth quite a while before discovering any great difference in speech between the folk there and those in the nawthen states. You may notice in cultured circles that you hear less of the meaningless slang so common in the North; you'll encounter an increase of courtesy, less suspicion, more attention to the decencies of life. But suspenders have nothing to do with a man's manners as long as they do their duty.

When Daniel Upthegrove was two years old and just beginning to scheme about what he intended to do with his life, Cornelius Vanderbilt and some members of his family put up a million dollars or more to endow what we now know as Vanderbilt University at Nashville. "That," said the boy, "is going to be my *alma mater* just as soon as I'm through the intervening hurdles, after which I shall take a law course at the University of Texas." And there, in a few words you have the educational record of one of the popular railroad presidents in the Southwest.

There is another yarn about Mr. Upthegrove that we can not take without violent agitation; to the effect that he wouldn't wear a split second evening suit. "He just sticks to his suspenders and his Stetson," says a biographer. This is supposed to be characteristic of the genuine Texan, just as a Missourian is expected to believe nothing until shown —and neither is right. Mr. Upthegrove, like every other business man in Texas or Missouri wears a Tuxedo or full evening dress whenever it is believed necessary. He, and many others might not feel comfortable in the outfit, but it is an American gentleman's uniform on parade, and therefore is accepted.

Mr. Upthegrove practiced law in Greenville, his home town, for nearly nine years after his graduation at the University of Texas. He married there. People knew him and liked him, but he suffered somewhat, as have other young men, under the handicap of a distinguished father's memory. Like Emerson, Daniel, Junior, believed boys and young men should make their own history, build their own precedents, depend on themselves and their own ability, and not on the accomplishments of their ancestors. So he quit Greenville.

"People in the old town kept comparing me to my father," said Mr. Upthegrove. "He was a distinguished lawyer, and I was not like him in many respects. I didn't get the benefit of his friends, and the younger generation didn't know about him.

"I moved to Dallas because I thought it offered a better opportunity. I had been busy at Greenville as local counsel for the Cotton Belt and practising in the justice of the peace courts. I discovered that it was not good for a youngster to do nothing, and I was manifestly destined to do little until I became known. So I built up a general practice as soon as I could, which fitted in well with my duties in Dallas as assistant general attorney for the road."

Fifteen years later, in 1916, Mr. Upthegrove was promoted to general solicitor of the Cotton Belt lines with offices in St. Louis, moved his family to that city, and cut loose from general practice.

Then America entered the World War and the government took over the railroads. For more than a year Mr. Upthegrove had no position and little practice. Even his unbounded optimism sagged under the strain. There were others as capable in the same fix.

Then the roads went back to their owners and Mr. Upthegrove resumed his work as general counsel of the road.

Daniel Upthegrove

"Do you remember the old 'wailing walls' mentioned in the Bible?" asked Mr. Upthegrove. "The wailing walls where such dreadful massacres have occurred recently—where the Jews wailed over their calamities? The legal department of the Cotton Belt became the road's wailing wall. We got all the troubles of the road sooner or later."

One Saturday afternoon early in August, 1922, J. M. Herbert, president of the Cotton Belt, died unexpectedly.

Early on the following Monday, Mr. Upthegrove was astonished when he received a telegram from the chairman of the board in New York asking if he would consent to take the presidency temporarily.

There were two strikes going on at the moment, the shopmen's strike, which was a serious thing, and the coal strike. It was also serious because the Cotton Belt lines had only three days' supply of fuel. The shopmen were then under injunction not to molest the property of the railroad. The difficulties seemed so tremendous that Mr. Upthegrove was discouraged. But he accepted the place, assuming that when these difficulties were worked out he would return to his office as general counsel for the road. When that day came his friends were not willing for him to relinquish the post of president. They urged him to permit them to go to New York and seek his election as permanent president of the Cotton Belt. He would not permit them to do so.

"I am not seeking the place," he told them. "My friends can best serve me if they will keep silent."

In October, 1922, however, when the stockholders of the road met in New York they elected Mr. Upthegrove as president. And there he is today.

Lawyers who become railroad presidents have not been widely acclaimed for their operating knowledge. Why should they? But no one can put anything over on Daniel Upthegrove. In him are combined the two qualities rarely found together: a keen understanding of the law, and a human, mechanical and thoroughly railroad-like conception of how to manage men and property. This was proved about the first thing after he became president when he sent out a mild suggestion to the operating forces, to the general effect that a good way to take the Cotton Belt out of the vaudeville wise-crackers' note books would be to run the trains on time. Ford, Mr. Upthegrove said, had prospered by reason of jokes about his product, but the effect on a railroad was certain to be injurious.

"Please run the trains on time," was the new president's gentle request, and a visitor discovered that in the first six months afterward, as a result, the record was better than 95 per cent on time.

Henry Villard

Mr. Upthegrove has a human viewpoint not encountered over-frequently in railroad circles. "The greatest service a railroad can give," said he, "is dependability. Suppose we are handling a shipment of building steel for Dallas. The shipper in St. Louis understands that the steel will reach Dallas on the third day. A delay might mean that work would stop temporarily on a skyscraper.

"So we give the shipper a progress report at every junction point. He knows where his steel shipment is every day on its way to Texas. If there is a delay we will telegraph him. He will know just what to expect.

"Suppose we are handling ten cars of oranges from our California connections. We tell the shipper where his oranges are. If they become tied up behind a wreck we telegraph him. He will regret the accident but he won't penalize us. He knows we are trying to do everything we can to expedite matters."

The kind of spirit one finds on the Cotton Belt is shown in a story about a car of fruit. It was from California and at a point near Stamps, Ark., a drawbar pulled out. The crew switched the car around so that the end with the good draw bar was attached to the caboose on the end of the train. Then they telegraphed to the agent at Pine Bluff, Ark.

By the time the train had gotten to Pine Bluff, which is 117 miles from Stamps, the agent had precooled another refrigerator car and made it ready so that the fruit would not suffer by the transfer. Then the office staff at Pine Bluff, white collar men who are never supposed to do menial labor, pitched in and transferred 600 cases of California fruit to the newly made ready car and the freight train pulled out for St. Louis without a delay and on schedule time.

Of course this is just good railroading, but it is in a class not found everywhere.

T. H. Alexander, a Southern writer, describes Mr. Upthegrove's ideas of just what constitutes success, which, like happiness, all men are seeking.

"Some men would be called failures," says Mr. Upthegrove, "who, according to my way of thinking, have made a great success in life. It occurs to me that school teachers, country doctors and preachers generally make a success of their lives because they render great service, but they don't make much money and the world seems to consider them failures.

"I remember when I was a child in Greenville, Texas, an old professor came from Tennessee to drum up students for a prep school, the Wall-Mooney school at Franklin, Tenn. It was in the early nineties and at that time most Texans sent their children to Tennessee to preparatory schools and colleges because thousands of Texans had come originally from Tennessee. My father, Daniel Upthegrove, Sr., invited the old professor to spend the night in our home. His visit fired me with ambition to get an education and the next fall I entered the school.

"I daresay that old gentleman died with but a few dollars to his name, but I honor him for his unselfish work to educate the youth of the South. I consider him a great success."

The Rise of Henry Villard

Digging into railroad history one comes upon the odd fact that the first, and perhaps the most outstanding of the great personalities that have figured in the western lines was native of a foreign land, came to western America under an assumed name, and here did exploits that made that name illustrious and lasting in

The Artistic Spirit of Santa Fe, N. M., Has Moved the People to Preserve the Spanish and Pueblo Indian Architecture in the State Buildings. This Is the State Historical Society's Home in the Ancient City. An A. T. & S. F. Photograph.

railroad annals. This man was Henry Villard.

There have been wizards in railroad manipulation, men whose talents were directed along widely divergent lines. Villard was a pioneer financial genius whose simple and direct methods brought confusion to rivals. A toiler and a student, while others assembled in thickly carpeted rooms and drove their bargains around mahogany tables he went to the sources of things, gathered his facts at far frontiers and made his decisions on the ground. His ultimate defeat of Wall street rivals, including the elder Gould, proved the quality of his vision, if accurate knowledge and sound judgment may be called vision. Although he rose and fell financially three times subsequent events confirmed his policies while he was still alive.

Henry Villard and Richard Koehler came from Germany to America in 1874 as agents of German holders of western railroad bonds. They visited points on the Wisconsin Central, the Kansas Pacific, the Central Pacific, the Oregon & California, and the California Pacific, Villard's mission having to do particularly with financial angles and conditions of those railroad properties. He found in California that the money had been as badly spent as in Oregon. Germany had invested 12 millions in California Pacific and the railroad was not even built; 11 millions in the Oregon line for the building of 375 miles of which only 200 miles were built and not earning half of the interest charge.

Proceeding to Portland, Oregon, his settlement with Ben Holliday was quick and sharp, and the adventurous Benjamin was out of the railroad game forever. Villard soon headed the Oregon & California toward a natural alliance with Southern Pacific, bought the Oregon Steam Navigation Company's Columbia River line for $4,000,000, and within seven years he had built the O. R. & N. from Portland to Huntington; organized a blind pool into which his friends poured $8,000,000, out-witted Wall street, and acquired control of Northern Pacific and completed the road from the Missouri River to the Columbia. At that time Oregon and Washington had a combined population of but 100,000; Portland was a town of 15,000, Seattle 6000, Tacoma 5000 and Spokane 400.

Today's railroads constitute the only monument to Henry Villard. A town on the Columbia between The Dalles and Pendleton was named in his honor by enthusiastic settlers when the O. R. & N. rails reached that point. The town, later known as Grants, was swept away in the great flood of 1894, and now a large sand bank and an automobile service station mark the spot once known by the mighty name of Villard. When he made his last visit to Portland in 1899 he said the reception that most pleased him was at Eugene, where his benefactions had made possible a state university. His life was one of tireless study. He died at Norwood, at the age of only 65 years.

His real name was Ferdinand Heinrich Gustav Hilgard. His people for generations were preachers and writers in Rhenish Bavaria. His father, a district judge in Munich, wished him to be an apprentice in some trade. He resolved to be a writer, however, differed with his father in politics, and at 17 came to America, landing in New York without a dollar or a friend, and without ability to speak English.

The sharp contrast between youthful minds of today and 75 years back are here exemplified. This boy calmly discarded his father's name, took that of Villard, tackled an English grammar and a dictionary, toiling 12 hours a day in his cheap room at translation of newspaper articles, meanwhile trying to sell pieces of his German writing to New York German newspapers. At this crisis in his affairs an uncle in Bellevue, Ill., sent him $50. He went to Illinois, tried studying law, peddled books, got into real estate and politics, and when he was 21 tried to get a land grant and colonize Kansas. Instead he got a job at $18 a week running a German paper at Racine, Wis., a paper that failed because its new owners tried to change its politics to Republican. The paper was turned back to its Democratic owner who, finding his business evaporated, was likewise ruined. Years after, when Villard was at the zenith of his power in Oregon this man wrote reminding him of the episode and received from him a check for $1000.

From Wisconsin Villard went to New York, wrote German articles at $4 a column, and kept trying to break into English newspapers. At

President Crowley, New York Central Lines, Presents Trophies to Winning Subsidiaries in Safety First Contest.

last Charles A. Dana told him he could go on his own expense to St. Paul and write up a riotous constitutional convention there, at $12 a column. He borrowed money, got a railroad pass and on reaching St. Paul found that the convention had compromised, and he was out of a job. With some companions he went then on a hunting trip to the Dakota prairies, and this was his first visit to the scene where afterward he became the greatest industrial hero of his day.

He returned to New York, broke, and after staying a winter went to Pennsylvania, and got a job teaching a German community school where he kept on studying the writing art and wrote articles for the New York Staats Zeitung. He was 23 when he returned to New York and the Zeitung sent him west to hunt up subscriptions. At this time portents of the Civil War appeared. He had a personal acquaintance with Stephen A. Douglass and Abraham Lincoln, and favored Douglass. He said Lincoln's funny stories disgusted him. He now got a job reporting the Indiana legislature for the Cincinnati Commercial, and was expelled from the press table by the senate for criticizing a senator. The Commercial sent him at $20 a week and car fare to report the Pike's Peak gold rush.

Next came the Civil War which he entered as a correspondent for the New York Herald, the Chicago Tribune and the Cincinnati Commercial. He returned to Germany in 1864, was reconciled with his family, and married a daughter of William Lloyd Garrison. He was now 36 years old. Resting at Heidelberg in 1873 a man approached him, showed him an Oregon & California railroad bond and asked his advice. The incident led to organization of the Frankford committee, his commission from the German bondholders and his coming with Richard Koehler to the Pacific coast, where he is now all but forgotten or unknown to the survivors of those whose pioneer fortunes he helped to build.

When Is a Man a Success?

When he refuses to slander even his enemies.

When he does not expect to get good pay for poor services.

When he does not wait until tomorrow to do the things that should be done today.

When he is loyal to his employer and not false to the ones with whom he works.

When he intelligently cooperates with the other members of the organization.

When he is studying and preparing himself for a higher position with better pay.

—*The Silent Partner.*

Faithfulness and truth are the most sacred excellences and endowments of the human mind.—*Cicero.*

To be conscious that you are ignorant is a great step to knowledge.—*Beaconsfield.*

One of the New Chair Cars Put on by the New York Central Between New York and Buffalo.

MR. OPERATING MAN

THIS OPERATING MAN

is happy because he has found more ton miles per hour are resulting from the use of an instrument located in the cab which has a dial, illustrated below:

The longer hand shows the engineman the locomotive speed and the shorter hand shows him the correct point of cut-off for all operating conditions.

With this instrument the losses caused by operating with too long cut-off and partial throttle are reduced because the enginemen now have an accurate guide and are no longer dependent on their sense of feeling and hearing in order to admit the correct amount of steam to the cylinders.

Test plant engineers and dynamometer car crews cannot determine the correct point of cut-off with any greater accuracy than the

LOCO VALVE PILOT

MANUFACTURED BY

CUT-OFF AND SPEED RECORDER CORPORATION

New York Central Bldg. - 230 Park Avenue

NEW YORK

Swiss Electric Lines Are Prosperous

Improvements Being Tried Out

By Walter Raleigh

The Landwasser Viaduct on the Rhaetian Railway in Switzerland Is Called by the Natives the "Stilts."

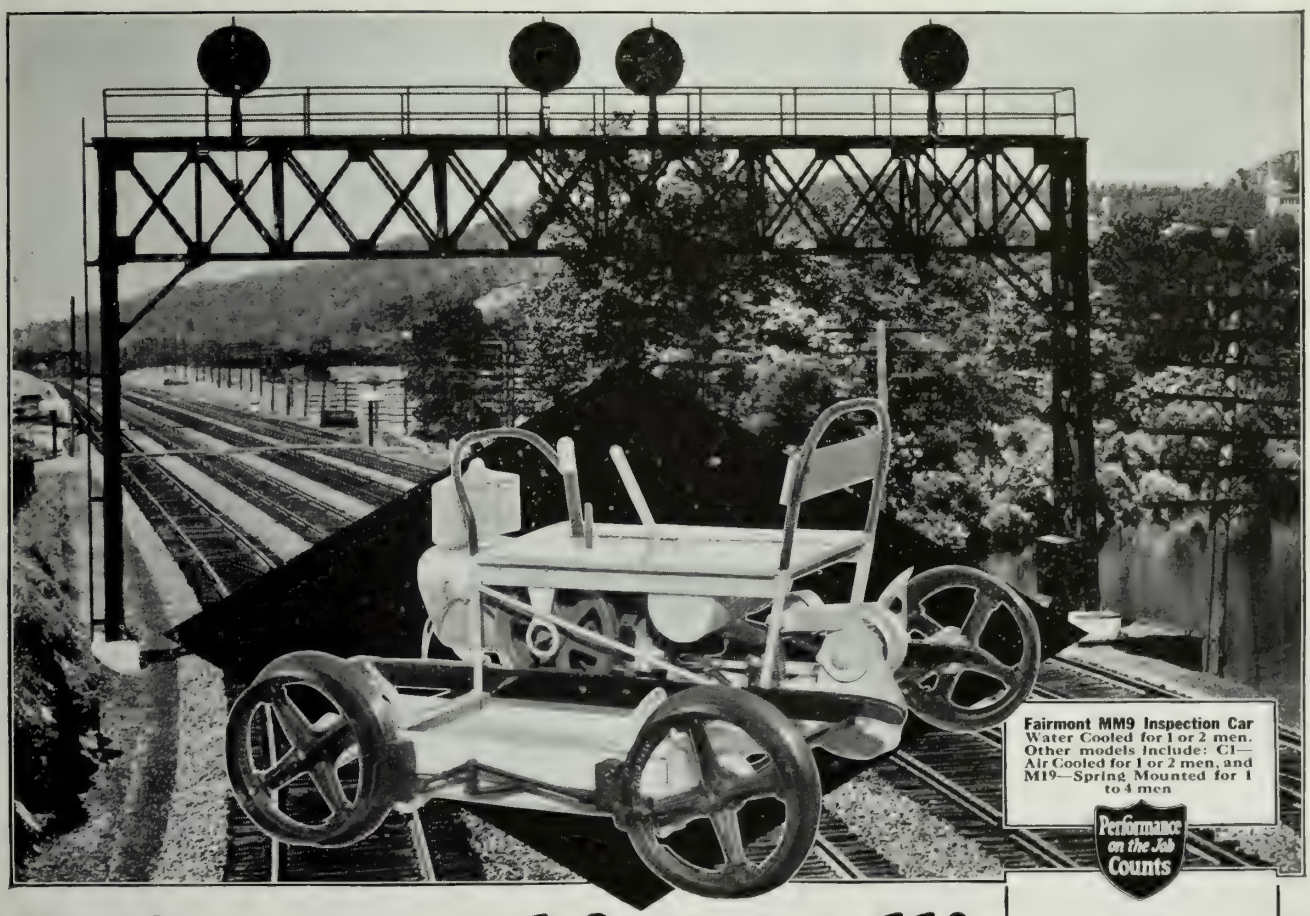
THE Swiss Federal Railways are largely electrified. But even the more general, and soon the fullest use of electric power has not caused the railway management to hesitate long in the adoption of other innovations.

A project for the establishing of gasoline tanks in 200 Swiss stations from which gasoline will be dispensed to motorists by the station personnel has been approved by the board of directors. The foreign company with which the arrangement is to be made agrees to transport all the gasoline by rail to the various stations. In return for this agreement the railway is forbidden to accord to any other company, Swiss or foreign, any similar concession under more favorable terms. It is believed that this business, conducted by the railway personnel in the name of and for the account of a foreign company, will pay the railways a yearly commission of approximately 1,500,000 Swiss francs. Some little criticism has been aroused by this proposed step which has yet to be approved by the parliament, on the grounds that this side line will be outside of the chartered rights of the railways. It is said to be quite likely that it will be carried out, however.

It is not strange in a country so rich in water power that even the poorest peasant has electric light in his lonely hut should lead the world in converting its railway lines rapidly to electricity. Just before the war, a survey of Switzerland's hydraulic resources estimated their total of 2,170,000 horsepower, of which 887,000 horsepower was then being utilized. It has since been estimated that the most efficient plant would increase the country's available energy to 8,000,000 horsepower, a figure so vast as to be almost beyond comprehension. Perhaps it is possible, however, to reduce it to more understandable terms. As the result of many experiments, the Swiss have adopted for their express passenger services a 128-ton type of electric locomotive rating 2,200 horsepower, and designed to haul a 425-ton train at an approximate speed of 47 miles an hour. Eight million horsepower might, therefore, be defined as sufficient energy to drive nearly 4,000 heavy express trains simultaneously. Knowledge of the possession of such enormous power resources has not worried the imperturbable Swiss, but it has fired the Italian imagination, and helped to make the use of electricity one of the cardinal points in the Fascist creed. Italy, like Switzerland, has no coal of its own. On the southern slope of the main Alpine chain it has, like Switzerland, an abundance of water power. Railway electrification projects have become an obsession in Italy. Thus far, Italy's electric lines are of local interest, with the single exception of the 56 miles of converted line from Modane through the old Mont Cenis tunnel to Turin, which is part of the

Fairmont AND Mudge

RAILWAY MOTOR CARS



Doing one thing well!

Thought, purpose, effort—all concentrated on the one task—Railway Motor Cars! Engineering skill, materials and manufacture—all devoted to helping the railroads in their gigantic task of linking the "magnificent distances" of America!

This concentrated effort enables the Fairmont organization to work in close touch with railway maintenance men and take care of their individual problems.

This broad experience, including every possible condition of motor-car service, has made the Fairmont line the dominant one in the field—over half of all the motor cars in use are Fairmont Products.

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A2—M2—S2
M14—WS2

Inspection Motor Cars
E14—C1—M19—MM9

Weed Mowers and Discers
M24—M23

Weed Burners
B (M27)—C (M27)

Gang and Power Cars
MT2—A4—A5

Push Cars and Trailers
T1—T2—T3—T12
T20—T24—T25

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THE RAILROAD WORLD KNOWS

Entrance to the Simplon Tunnel on Line From Monteraux to Berne, Switzerland.

present main route from Paris to Rome.

On their sections of the St. Gothard and Simplon routes, however, the Italian State Railways are still using steam traction. You may see the two methods of traction, the old and the new, side by side at the frontier. A long, black steam locomotive, made in the Italian shops at Milan, waits on a sidetrack. The big train from the north of Europe comes in apparently of its own accord with no locomotive of any sort, but a closer look reveals that its first car, a long, brown car like any ordinary passenger car except for the upstanding claws on its roof which touch the network of electric cables overhead, is one of the new electric locomotives which the Swiss works at Baden are turning out.

It is this new method of traction which is now picking up the Swiss international expresses from the older and more familiar method of steam locomotion at the French and German frontiers, and handing them over to steam again at the Italian frontier. Switzerland, in the very heart of Europe, is the first country in the world to electrify its principal main routes from frontier to frontier. It is interesting to recall that the first practical demonstration of electric traction in all history was made as recently as the Berlin exhibition of 1879, about 50 year ago! Of the 33 individual conversion schemes which comprise the present 10-year program of the Swiss federal system, the conversion of the famous St. Gothard line is by far the most interesting.

Italian and German determination to open up a modern and direct means of communication resulted in the planning in the early '70s of an international railway to cross Switzerland from north to south and the St. Gothard massif, where the main chain and its northern outlier unite, was chosen as the site at which it was to pierce the great Alpine barrier. The principal difficulty was to get the line from the Beuss Valley on the north of the massif to the Ticino Valley on the south and this was the purpose of the main tunnel.

It was the engineering marvel of the Nineteenth Century, and it is still a main route from the north of Europe to Italy. From the first it was such an enormous success that some measure of relief became imperative and the Jura-Simplon route was opened in 1906 to relieve the St. Gothard of the Paris-Milan traffic. This route slips into Switzerland from the side and ascends the easy valley of the Upper Rhone, between the main Alpine range and its northern outlier, to Brigue, where it abruptly enters the longest mountain tunnel in the world, the famous 12-mile Simplon, which carries it under the main range of the Alps to the head of the wild Gondo gorge, through which a succession of shorter tunnels brings it down to the floor of Italy. It is now a main route from Paris not only to Milan but also to Constantinople and Athens.

To provide for an intermittent water supply two power stations had to be built. One, for use in summer when the melting of the glaciers and the ordinary rainfall produce an ample supply, was built at the top of the Reuss Valley not far from the northern entrance to the main tunnel. The summer flow of the Reuss River was diverted into a tunnel a little less than four and a half miles long and was conveyed to a point 900 feet above the little mountain station of Amsteg. Here it enters the pipe lines which apply the terrific pressure of a 900-foot drop to six turbines capable of generating 90,000 horsepower. This is more than enough to operate the St. Gothard line, and much of it is being sold to factories in and around Zurich in the north of Switzerland.

In the winter, when the glacier flow and all the surface water is frozen, the Amsteg station has no water to work its turbines and the Ambri Piotta station in the Ticino Valley south of the main tunnel has to be used. Some 3,000 feet above the Piotta station the level of Lake Ritom has been artificially raised to secure a sufficient summer accumulation of water for use during the six winter months. As soon as the Amsteg station closes down for the winter, the waters of Lake Ritom are admitted to a tunnel more than 1,000 yards long which conveys them to the pipe lines which in turn apply their pressure to the four turbines of the Piotta station far below. At present the Piotta station has a capacity of 48,000 horsepower, and so sensitive is its equipment that it can feel the increase or decrease in its load due to the starting or stopping of a train at some distant station and can, automatically, adjust its supply of power accordingly.

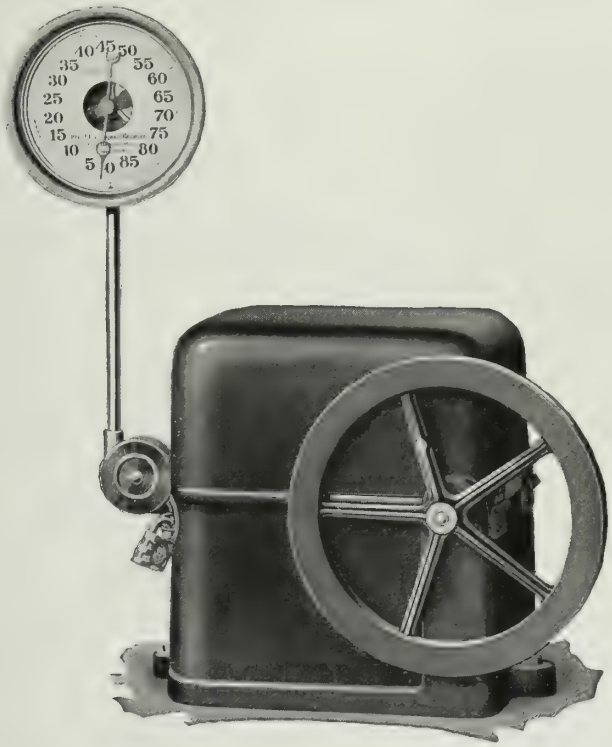
The Jura-Simplon line is being worked by another complementary pair of power stations, one near Vallorcine utilizing the winter flow of an immense artificial lake high up in the Mont Blanc group, the other, the Barberine station, at a lower level on the same watershed, utilizing the summer flow. These two lines, the St. Gothard and the Jura-Simplon, comprise ten of the 33 individual conversion projects which the federal system will have completed by the end of this year.

Electric Signal System for Sweden

In connection with the reconstruction of the Central Railway Station at Stockholm, Sweden, the traffic department of the railway has decided to install an electric signal system. It is estimated that the work will begin during the first half of 1929 and be ready for use during 1930. The electrification of the signal system at Stockholm is estimated at about 300,000 crowns. The new system will be centralized in one signal tower instead of three towers at present in use. The old signal posts will be eliminated and a new light signal system similar to that in the United States will be established.—*U. V. W.*

THE BOYER SPEED RECORDER

Provides an Accurate Record of the Movement of any Locomotive or Car



THOUSANDS of these recorders are in use by railroads and have proven of great value because they automatically provide a permanent and indisputable record of:—

1—Speed in miles per hour at all points on trip.
2—Total mileage between any and all points.
3—Location of each stop or slow-down.
4—Location of each brake application.
5—Acceleration between any two points.

Write for Bulletin 620, illustrating and describing this device.

CHICAGO PNEUMATIC TOOL CO.

Railroad Department

P-305

6 East 44th St., New York — 310 South Michigan Ave., Chicago
175 First St., San Francisco — 1004 Mutual Bldg., Richmond, Va.
Terminal Tower, Cleveland

Sales and Service Branches All Over the World

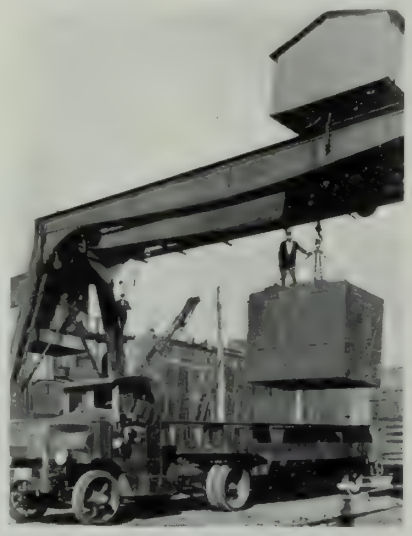
Fruehauf Heavy Duty Trailers

TRUCKING companies cooperating with railroads giving store door collection and delivery to shippers have widely incorporated Fruehauf heavy duty semi-trailers in their service for economical and efficient handling of merchandise containers. While these heavy-duty trailers were built especially by the Fruehauf Trailer Co. for this service, they are almost completely standard in specifications. A trailer pulled by a motor truck easily handles three times the load that could be carried by the truck alone. For transporting freight containers the use of trailers gives rapid store door collection and delivery service between railroad and shipper at an economical cost.

The first container car service was announced between Chicago and Cleveland early in 1921. When the plan did not take well the service was transferred to the East and experiments continued. Many railroad executives were convinced of the fundamental soundness of the idea, and thoroughly believed the solution to the old problem of handling l.c.l. freight shipments lay in the use of merchandise containers. It was recognized that the old methods of handling freight, which has been in use for 50 years, were often cumbersome and not economical. Shipments of miscellaneous goods were often unavoidably poorly assorted when cars were loaded as goods were received. Heavy packages received late necessarily were placed in cars already two-thirds loaded with lighter packages because lack of time prohibited re-arrangement. This increased the possibility of damage claims.

These problems were eliminated by freight containers which could be packed by a manufacturer directly at his factory. More compact loading was made possible by the use of containers, and since all classes of merchandise could be shipped together and at the same rate, transportation costs were reduced and damage claims practically eliminated. However, this plan to give the shipper store door collection and delivery did not succeed as expected on account of inadequate and ineffectual methods of transporting the heavy containers to and from the railroads. For several years following their first trial, containers were used with indifferent success because no effective plan was found for bringing the service to the shipper's door at an economical cost.

The successful solution came when the Universal Carloading and Distributing Co. cooperated with the railroads in transporting the containers from the railroad to the consignee at a rate making the service thoroughly practical. This organization, with its fleet of over 250 Fruehauf heavy duty trailers, operates in cities throughout the country from Canada to Mexico. Loaded containers are transferred to a trailer at the railroad station. The heavy-duty trailer pulled by a motor truck transports the containers directly to their destination, which usually is a manufacturing plant prepared for this type of service.



Loading Containers From Cars To Fruehauf Heavy Duty Semi-Trailers.

Three loaded containers are handled easily by the trailer at a single trip. Since trucking companies began to cooperate, store door delivery and collection service has spread with success throughout the country.

Freight containers have found wide favor among shippers. Their shipments are more compact by this method, and crating and wrapping such as were necessary under the old plan, are eliminated. The goods can be wrapped as for ordinary truck delivery which saves time and extra transportation cost of heavy crating. A reliable and efficient trailer and trucking service makes store door delivery possible in any part of the country and is the agent which helped the plan to success by connecting the railroad and shipper at an economical cost.

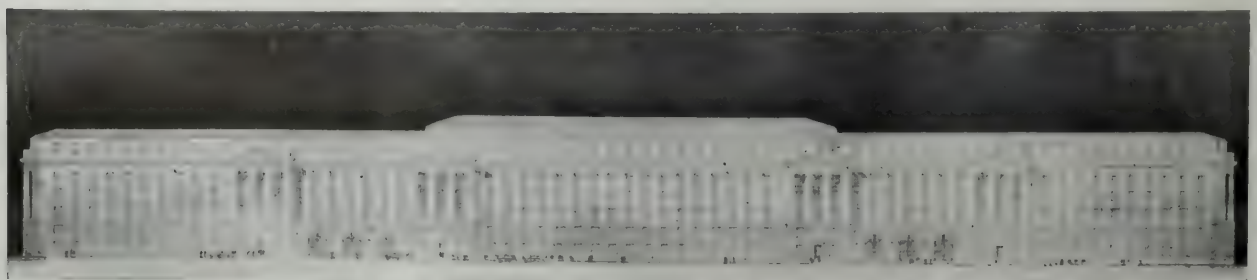
A Big Home for Big Business

U. V. W.

The new building for the United States department of commerce in Washington is planned to be one of the greatest office buildings of the world. It will occupy three complete city blocks. Its length, 1050 feet, exceeds that of the federal capitol by 300 feet, although its breadth, 325 feet, is 25 feet less. It is longer than the British house of parliament by 110 feet, though not so wide. The land area occupied is about 345 square feet, nearly eight acres. The building is now growing rapidly.

The setting for the building is one of natural beauty. It looks southward over the grounds of the Washington Monument and westward over the park lying south of the White House. The floor area provided within the entire building is 1,092,800 square feet, sufficient to accomodate all the branches of the department, except the bureau of standards which has its own plant in a suburban district of Washington.

"Leisure is a crucial test of the individual and influences he is daily subjected to."—*William Green.*



The United States Department of Commerce, Now Pretty Well Scattered Around Washington, Will Have a Home in This Magnificent Structure Some Time in 1932.

Truly a "Railroad" Bearing

A GENERATION of experience with railroad truck design stands behind the American Steel Foundries Roller Bearing Unit.

The result is a roller bearing application conforming to A. R. A. standards and to railroad requirements.

By mounting the bearing within the hub the efficiency of the bearing is actually increased while complete interchangeability with friction bearing, wheel and axle assemblies is maintained.

In every way the American Steel Foundries Roller Bearing Unit conforms to present railroad practices.

Write for Descriptive Booklet

AMERICAN STEEL FOUNDRIES

NEW YORK CHICAGO ST. LOUIS

Hole Boring and Pole Erecting Machine of the British Columbia Electric Ry. Co.

Digging Post Holes Now By Machinery

By F. H. Fullerton

ALWAYS to the fore in the matter of progress the B. C. Electric Railway Co. has found it extremely difficult to cope with the demand resulting from the steady expansion of Vancouver from what was once known as the bush. The wilderness of yesterday becomes the populous street of tomorrow, and with each new street comes the insistent demand for light. Each new group of homes requiring electric current means the necessary erection of poles, a process which until recently called for time and labor.

Now even the digging of holes and setting up of poles can be done by mechanical means, and the work of forming extension lines on the light and power service will be cut down to a fraction of the time formerly necessary. The company purchased and received delivery in October of a hole-digging and pole-setting machine, which under early tests has already demonstrated its complete superiority over the old system of hand digging.

The machine cost $13,000, including accessories. It was built at Kitchener, Ont. In appearance it resembles a steel derrick mounted on an auto truck. This, to a certain extent, is exactly what it is, but there are other features. The boring is done by means of a large auger, which is turned on a shaft by power from the auto engine. The auger shaft extends the length of the derrick tower, and is propelled into the ground by a sprocket chain. It will be seen, therefore, that the depth of the hole is only conditional upon the height of the tower.

In operation the auger is controlled by a man who stands directly over the hole. By throwing over a lever he sends the borer to the ground; another lever and it begins spinning rapidly, biting its way through the soil at a rate far beyond the power of the hand digger. At intervals the process is reversed; the auger is brought up loaded with loose soil, and a spin sends the earth scattering around. Then down again the auger plunges, to burrow again and again until the hole is at the required depth. Digging through ordinary soil, the machine is capable of making a hole 24 inches in diameter and seven feet deep in seven to eight minutes.

One of the first tests to which the machine was put was on extensions to the light line in South Vancouver. Here the soil is exceptionally difficult. Three feet below the surface the auger encountered a rock-like stratum of hardpan. It bored through this without great trouble until a number of actual rocks were met. This necessitated withdrawing the borer until the rocks were removed with the aid of steel spikes. When the spinning auger met with the rocks, so great was the force of the contact that the jaws of the implement were smashed off, and a fresh set were substituted. In spite of the time thus lost, the hole was dug to seven feet in 30 minutes.

The setting of the pole is a simple matter. The derrick, set upon a turntable on the truck, is able to swing to either side or to the rear. The pole is fastened to the derrick chain and hauled upward, the base being guided into the hole by men with peevies. This operation is completed in one or two minutes.

In times of emergency the advantage of such a machine is obvious. Disruption of service, when lines are blown down in a gale, is reduced to a minimum, for new poles can be installed in incredibly quick time. It can dig through frozen or snow-covered ground, an operation almost impossible under the old hand method. Should a pole snap off above the ground level, the stump can be drawn out as a dentist draws a tooth.

Dispatching in the Olden Days

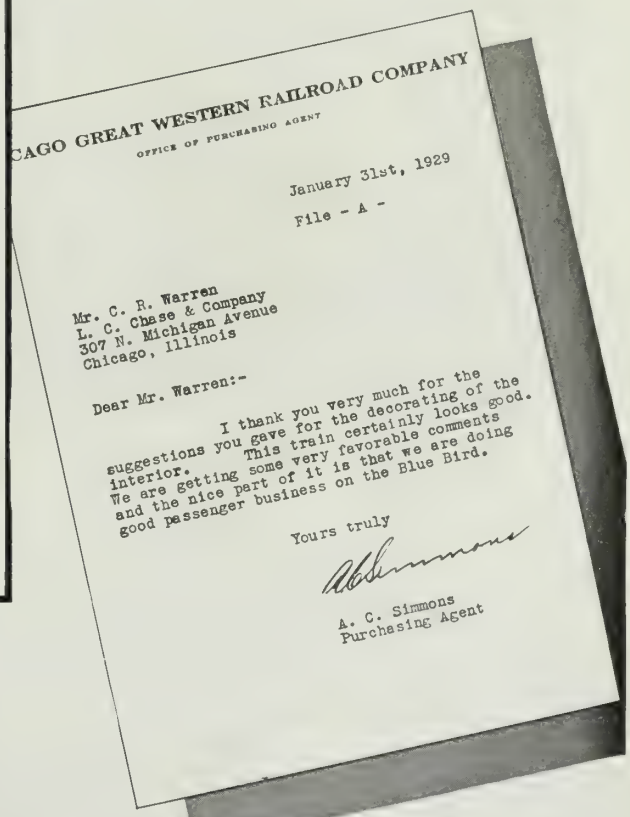
By Harry W. Forman

Part of a paper read before the Pacific Railway Club by the author, Mr Forman. Other installments of this interesting paper will appear in other editions.

The incidents here related may impress some as being pessimistic, and at times invidious. It is not so intended; rather let it be regarded as a faithful, composite picture of a certain class of railroad employes who are called upon to solve vital problems, often in the dead hours of the night without help or precedent to guide them; problems of which those who have not filled such positions can know but little. These side lights merely typify some of their almost daily experiences.

If one were allowed to interject a few cuss words here and there the story might be made more realistic; without the occasional use of which many dispatchers might not be able to carry their loads, as at times there would seem to be nothing left for them to do but indulge in most lavish and original profanity. Sometimes

The CHICAGO Great Western Railroad Adopts CHASE Velmo UPHOLSTERY



CAGO GREAT WESTERN RAILROAD COMPANY
OFFICE OF PURCHASING AGENT

January 31st, 1929

File - A -

Mr. C. R. Warren
L. C. Chase & Company
307 N. Michigan Avenue
Chicago, Illinois

Dear Mr. Warren:-

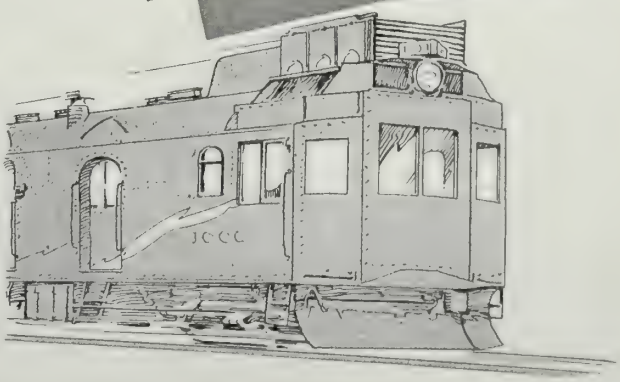
I thank you very much for the suggestions you gave for the decorating of the interior. This train certainly looks good. We are getting some very favorable comments and the nice part of it is that we are doing good passenger business on the Blue Bird.

Yours truly

A. C. Simmons
Purchasing Agent

ONCE again—new equipment includes regal Chase VELMO Upholstery. The new Gas Rail train, the "Blue Bird," starts a better service by giving to patrons the finest upholstery fabrics as seat coverings.

Chase VELMO sets the pace. Imitators follow, but the test of time still proves VELMO the ultimate choice.



Made by
SANFORD MILLS
Sanford, Maine

Selling Agents: L. C. CHASE & CO.
Boston - New York - Chicago
Detroit - San Francisco

The Hole Boring Machine Does the Hard Work Quickly and More Efficiently Than Men Can Do It.

the irritating situations with which they are confronted leave no alternative. Still I have seen dispatchers so nervous and wrought up over a situation, not of their making and entirely beyond their power to control, that tears would course down their cheeks instead. It is a matter of temperament. It may have been a case of a freight conductor reporting all ready and stating he could make the next station without delaying the passenger train but could not clear its time five minutes. Accordingly the dispatcher gives him a "meet," only to discover later that the train is not ready; that there is work to be done on the engine, or another switch to be made, and in the meantime the train which was helped had pulled down out of reach. Or a freight train having in its possession an order to meet some more important train at the second station in advance, may pass an intermediate office in good season, then stop for 30 minutes or more a mile beyond, to work on a hot journal, delaying the more important train unnecessarily.

Occurrences of this kind are very disturbing, as dispatching trains involves as intricate moves as those of a game of chess. A situation often presents itself which necessitates making meets for a number of freight trains at a given point and later moving some of them to another station, either ahead of or against a passenger train, to avoid delay to the latter—this where dispatchers are working under ironclad instructions to give that particular first class train a clear track. Again it may be that a dispatcher is ordered to clear the road for an important special which is to make fast time and when too late to arrange to meet the new conditions he is coolly informed at the last minute that plans had been changed; that a speed of only 30 miles an hour would be maintained during the night; or that certain stops of 30 minutes or more, not previously mentioned, would be made.

The next day when this dispatcher comes on duty he is likely to find a "Why" note, (every dispatcher will understand what is meant by this); then he feels like praying for the mountains to fall upon him.

At one place where I worked we had a few pigeonholes labeled, "Sheep," "Fast Mail," etc. Reprimands were filed away accordingly. Only feeble attempts were made to account for delays; in many cases they could not be explained plausibly. On one occasion I calculated that if reduced to years one train of cattle which I was accused of delaying by improper handling meant the same as two years' detention to one animal. Sometimes we relieved our overburdened minds with facetious calculations of that kind.

In recounting such annoyances today, they seem amusing, merely mole hills, but when actually experienced they were mountains of mortification.

Upon coming on duty one night I was startled to find a newly classified pigeonhole which a day dispatcher had labeled "Jackasses." The occasion for this new receptacle was brought about through my having delayed No. 2, the most important passenger train on the road, one hour at a junction point to load the paraphernalia of an Uncle Tom's Cabin troupe. The donkey got wedged in between the station platform and an improvised loading chute and was extricated with the greatest difficulty only after a delay of 45 minutes. The next morning it was clearly pointed out to me that the troupe need not have been moved on that train; that failure to get through in time to give a parade would not have resulted in any penalization of the company; and that my services would be dispensed with as soon as another dispatcher could be found to take my place. No dispatcher was found, however, as the reputation for grief on the "Stormy Division" was too well known. In the situation with which I had been confronted, what else could anyone have done? The manager of the show threatened suit unless moved on No. 2, there were no telephones, I was young, inexperienced and left alone at two o'clock in the morning to do the best I knew how. Should I not do the right thing I might expect to be shot at sunrise, figuratively speaking. If I never made a mistake, I would be allowed to live and be paid the princely salary of $75 a month.

She Needn't Walk Home

It was their first airplane ride, and the young woman of the party felt quite nervous.

"You will bring us back safely, won't you?" she said to the pilot, with a rather faint smile, as they were about to start.

"Of course I will, miss," he assured her, touching his leather helmet, "I've never left anybody up there yet."—*Boston Transcript.*

HANDLING LONGER TRAINS

In many instances brake operation has become the controlling factor in determining the length of trains that can be hauled.

Train line leakage and friction to the flow of the air seriously affect the efficiency of the Air Brake.

Millions of dollars are lost annually in wasted fuel pumping against leaks.

ROBINSON AUTOMATIC CONNECTOR joints are tight joints. Friction to the flow of the air is greatly reduced, giving smoother brake operation, and uniform application through longer trains.

Increased tonnage is a natural result.

ROBINSON AUTOMATIC CONNECTOR

415 Lexington Avenue
New York

"Building Automatic Connectors is our exclusive business"

Radio Aids Long Freights

Favorable short wave radio communication tests on long freight trains, carried out during the past two years by the New York Central on the Mohawk division, may lead to further experiments on a large scale if the federal radio commission grants the necessary operating licenses. A representative of the railroad company in New York said a few days ago that renewal of a short wave license is being sought from the commission for continued testing on the Mohawk division between the Selkirk and De Witt railroad yards, near Albany and Syracuse, respectively.

"It is quite a problem with long freights to effect efficient signaling between the engineer and flagman, who are normally at opposite ends of the train and often a mile or more apart," said the representative. "Radio has been found valuable as a means of direct communication between the ends of such trains and we would like to try it on a larger scale, perhaps on six trains of the same division. If this was possible we would have a direct comparison with the traffic speed on the other divisions."

Railway Economy Scheme in England

In connection with the keen competition in England between the railways and motor transport agencies, a cooperation agreement has been reached by the London Midland & Scottish and the Great Western Railway companies for further economy in expenses. This scheme is to be applied first to railway workings in the west of England, where up until now the two companies have overlapped each other in this area.

"As long as you live you cannot retire."—*Adolph Lewisohn.*

The News of the Month

What's Been Going on in Transportation, Railroads, Automotive, Supply, Aviation

THE mortality rate of airplane pilots during the first six months of 1929, in contract mail operations, was one to every 1,063,293 miles flown, according to figures reported by the aeronautics branch of the department of commerce. This was a decrease of 50 per cent under the rate for the first half of 1928.

The number of miles flown by contract mail operations in the first half of 1929 (6,379,776) nearly equals the mileage for the entire year of 1928 when 7,846,296 miles were flown, and seven pilots and nine passengers were killed, the department states.

On all other scheduled airway operations in 1928 there were two pilots and four passengers killed out of 2,827,154 miles flown, the data disclosed.

Figures showing the development of other scheduled airway operations, aside from air mail, follow: 1926, miles flown, 77,680; fatalities, none; 1927, miles flown, 148,076; fatalities, none; 1928, miles flown, 2,827,154; fatalities, two pilots, four passengers.

For contract air mail: 1926, miles flown, 1,958,144; fatalities, three pilots, one passenger; 1927, miles flown, 4,223,142; fatalities, 5 pilots, one passenger; 1928, miles flown, 7,846,296; fatalities, seven pilots, nine passengers.

Railroad and the Bus

The Interstate Transit Lines, a motor bus concern, owned and operated by the Union Pacific, which recently purchased several bus companies in Nebraska, has filed applications with the various public utilities commissions asking permission to operate buses from Omaha via Cheyenne to Utah, and from Kansas City via Denver to Cheyenne.

General Foremen's Meeting

The 23rd yearly convention of the International Railway General Foremen's Assn. is to be held Sept. 17-20 at the Hotel Sherman, Chicago.

Bus Terminal for Kansas City

A ten-story hotel and bus terminal is to be built in Kansas City at a cost of $3,500,000. The structure will be on the east side of McGee street between Ninth and Tenth.

Rate Revision Delayed

Schedules proposing the upward revision of class rates, westbound, from Chicago, Milwaukee, St. Louis and group points have been suspended by the Interstate Commerce Commission, it was announced on Aug. 23.

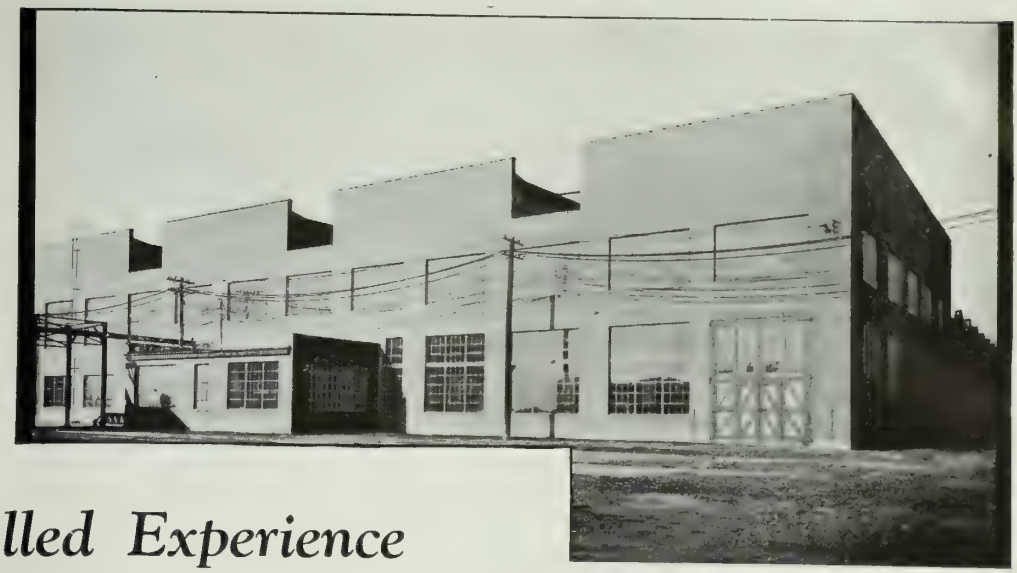
No Rate Cuts This Time

It has been recommended to the Interstate Commerce Commission in a report of Examiner J. Edgar Smith, made public on August 21, that the complaint of the railroad regulatory bodies of Arizona and New Mexico, alleging that the class rates between points in these states and points in other states are unjust, discriminatory and prejudicial, be dismissed.

—U. & U. Photo.

Santa Fe Bridge Across the Mississippi River at Fort Madison, Iowa, Cost $6,000,000; a Toll Bridge With Road for Vehicles Above the Tracks. It Is Said to be the Longest Draw Span in the World. It Is Double Tracked, and With Its Approaches Is 4,000 Feet Long.

Pennsylvania Railroad
Electric and Paint Shops
Wilmington, Delaware



Unequalled Experience in CONSTRUCTION WORK *for* RAILROADS

The long experience of this organization in railroad work—our intimate knowledge of a railroad's problems—are proven by the construction of 22 locomotive terminals, 34 shops, 43 power plants and many passenger and freight terminals and other general building and engineering assignments.

In almost every case enumerated, we did the design as well as the construction—cooperating to the fullest extent with the client's own engineering department and producing the new facilities with speed at low cost.

UNITED ENGINEERS & CONSTRUCTORS, INC
Specialists in the design and construction of
SHOPS
LOCOMOTIVE TERMINALS
PASSENGER TERMINALS
POWER PLANTS
ELECTRIFICATION
PRODUCE TERMINALS
OFFICE BUILDINGS

Among our many railroad clients have been the following:

Atlantic Coast Line Railroad
Baltimore & Ohio Railroad
Boston & Maine Railroad
Buffalo, Rochester & Pittsburgh Railway
Canadian Pacific Railway
Central Railroad of New Jersey
Chesapeake & Ohio Railway
Chicago, Burlington & Quincy Railroad
Chicago, Rock Island & Pacific Railway
Chicago & Alton Railroad
Chicago & Eastern Illinois Railroad
Chicago and Northwestern Railway
Clinchfield Railroad
Erie Railroad
Great Northern Railway
Illinois Central Railroad
Lehigh Valley Railroad
Missouri Pacific Railroad
Mobile & Ohio Railroad
Pennsylvania Railroad
Pittsburgh & Shawmut Railroad
Reading Company
Rutland Railroad
Southern Pacific Lines
Southern Railway
Terminal Railroad Assoc. of St. Louis
Union Pacific Railroad
Wabash Railway

UNITED ENGINEERS & CONSTRUCTORS
INCORPORATED
DWIGHT P. ROBINSON, PRESIDENT

PHILADELPHIA NEW YORK NEWARK CHICAGO
LOS ANGELES BUENOS AIRES RIO DE JANEIRO MONTREAL

MAXIMUM RETURN TO CLIENTS PER DOLLAR INVESTED

"It is not plain," the proposed report states, "that Arizona and western New Mexico, regardless of the technical showing made, are entitled to any rate treatment which would be preferential to them over their sister states to the north."

New Type Stock Car

The Canadian National Railways have developed a new type of stock car, having a steel runway extending laterally just under the roof from which are hung two partitions adjustable to any part of the car. This makes possible the dividing of the live cargo, preventing injury to young and light-weight cattle when shipped with heavier stock. Drawings of the car can be borrowed from the transportation division of the bureau of foreign and domestic commerce by requesting Exhibit No. 1071 Department of Commerce, Washington.

Container Service Recommended

So-called railroad "container service" as now operated and as proposed to be extended in the eastern territory is desirable in the public interest, according to a proposed report to the Interstate Commerce Commission made public on Aug. 23, which recommends that the commission reach such a decision.

The rate structure now applicable to such service is wrong in principle and unlawful, the proposed report, filed by Examiner Harry C. Ames, states. Present conditions, in the opinion of Examiner Ames, do not warrant establishing the service in western territory at this time.

The Net Looks Better

For the first six months of 1929, according to reports made public August 10 by the Bureau of Railway Economics, Class 1 roads had a net railway operating income of $563,347,135 which was at the annual rate of return of 5.54 per cent on their property investment. In the first half of 1928 their net railway operating income was $462,227,525 or 4.62 per cent on their property investment. The reports are from 181 roads with mileage of 241,426.

Gross operating revenues for the first six months in 1929 totaled $3,063,123,880 compared with $2,911,402,603 for the same period last year or an increase of 5.2 per cent. Operating expenses for the first half of the year amounted to $2,245,814,800 compared with $2,208,787,092 for the same month one year ago or an increase of 1.7 per cent.

Class I railroads in the first six months of 1929 paid $195,877,964 in taxes, compared with $182,705,783 for the same period the year before. For June alone, the tax bill of the Class I railroads amounted to $34,117,951, an increase of $2,437,386 over the previous year.

Seventeen Class I railroads operated at a loss in the first half of 1929, of which six were in the eastern, two in the southern and nine in the western district.

Fifty Years' Loyal Service

Lyman W. Putnam, commercial agent of the Terminal Railroad Association of St. Louis, celebrated his half-century connection with that transportation agency August 20, and was the recipient of many marks of felicitation from terminal officials and traffic representatives of many railroads. Mr. Putnam started with the terminal as a yard clerk in August, 1879, and 15 years later received his first appointment in the traffic department as contracting agent. He is widely known in railroad circles throughout the country, and despite his 50 years of continuous service, is still hearty and active and never relaxes in his job of getting freight routed through the St. Louis gateway. He is married and resides in St. Louis.

Baggage and Passenger Men Meet

The Western Association of General Baggage Agents and the Southwestern Passenger Association, held a joint meeting at the Brown Palace hotel, Denver, August 13. The best ways and means to take care of the combination rail and air traffic was the principal topic.

Improvements Planned by M. P.

The Missouri Pacific will spend $9,000,000 in removing curves, grades, and the placing of some new track at various sections between Pueblo and Kansas City. Completion of the work will enable it to make faster time and move heavier freight trains.

When Men Quit Work

One hundred five employes of the Pennsylvania Railroad System were retired from active duty on September 1, 1929, under the company's pension plan, and placed upon the "Roll of Honor." Four of the number have been in the employ of the Pennsylvania Railroad for 50 years or more each, while sixty-one have had records of 40 years' service or more. Since the pension plan of this company was established, January 1, 1900, 22,867 employes have been retired under its provisions. Of these 13,410 have died.

A Welcome Lift for Motorists

Effective September 1, automobile baggage car service was established between Wells, Nevada, and Ogden, Utah, by the Southern Pacific to give motorists a welcome lift on the transcontinental trip. The auto ferry by rail will eliminate the 234-mile drive around Great Salt Lake. Automobiles will be handled as baggage at low cost and without delay to autoists who apply for the service one hour prior to train departure time. Special end-door cars are provided for checking of machines. Autos are driven aboard and taken off by means of steel runways.

A Memorial for Palmer

On September 2, at Platte and Nevada avenues, Colorado Springs, there was unveiled a memorial statue in honor of General William Jackson Palmer, the man who did much pioneer railroad building in Colorado and the founder of the city of Colorado Springs.

New Railroad in British Columbia?

Plans for a new railway in Northern British Columbia are being considered in Canada, according to the department of commerce at Washington. The project is reported sponsored by the Telkwa-Kitimat Railway Company, which will ask the legislature for necessary authority. The country to be served, lying in the bend between Telkwa and Pacific on the line of the Canadian National Railway, is reported rich in timber and minerals. The western terminus of the railway would be at Kitimat at the head of Douglas Channel, which lies south of Prince Rupert, offering a shorter water haul to Vancouver.

Rail Extension Proposed

The Yreka Railroad Co. has submitted to the Interstate Commerce Commission an application for the construction of 35 miles of railroad from Yreka City southwesterly to Etna, all in California.

The proposed extension would pass through Fort Jones and Greenview. The territory through which the extension would run is said in the application now to be without any means of railroad transportation. The extension would tap and make accessible large and valuable resources of timber, agriculture and minerals, it was explained, which at present are unavailable and inaccessible.

The S. P. Still Extends

The Southern Pacific Company has been authorized to acquire control, by lease, of the railroad and property of the Nevada-California-Oregon Railway, it was announced by the Interstate Commerce Commission on Aug. 30. This will provide a through route, operated by one carrier, between the Klamath Falls, Ore., territory and Ogden. The line of the lessor extends from a connection with the Southern Pacific lines at Wendel, Lassen County, Cal., northerly through Modoc County, Cal., to

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The Heart of the Locomotive

CIRCULATION
ECONOMY
SAFETY

Locomotive Firebox Company

Montreal CHICAGO New York

Lakeview, Lake County, Ore., about 155 miles.

The Central Pacific Railway, controlled and operated by the Southern Pacific, is now building a line between Klamath Falls, Ore., and Alturas, Cal., a point on the lessor's line, the report states.

The Southern Pacific's through route between Klamath Falls and Ogden will be made possible by the use of the newly-constructed line and the line authorized to be acquired by lease.

T.A.T. to San Francisco

Transcontinental air-rail service between New York and San Francisco went into operation September 2 when the first plane load of passengers left the Bay City for the East. The first passengers from New York by air were expected to reach San Francisco at 8 o'clock Tuesday evening, September 3. The Maddux Air Line planes carry San Francisco passengers between that city and Bakersfield, where they are transferred to the T.A.T. planes east bound from Los Angeles. These planes take the passengers to Clovis, N. M., where they board the Santa Fe train for the East. The west bound flights are conducted in the same way.

Bus and Truck Speeds Reduced

Trucks and buses will be restricted to 45 miles an hour on Idaho highways as a matter of safety to other vehicles, according to a statement of Fred E. Lukens, secretary of state and commissioner of law enforcement. Secretary Lukens declares that scores of persons complain that heavy buses and trucks, thundering along the highways at 50 to 60 miles an hour, force smaller cars off the road. The state law prescribes 35 miles an hour as the limit of safe driving, but permits higher speeds where traffic and the condition of the highways do not make greater speeds hazardous.

The secretary prescribes 40 miles as permissible speed and 45 miles as time for the interference of traffic officers.

Adverse Report From Examiner

The Interstate Commerce Commission has been advised in a proposed report of Examiner O. D. Weed, made public on August 20, that present and future public convenience and necessity are not shown to require the construction by the Western Pacific California Railroad Company of a line of railroad in San Francisco and San Mateo Counties, Cal. The application of the railroad, a subsidiary of the Western Pacific, proposes that the construction of 25-mile line of railroad from San Francisco to a short distance beyond Redwood City be authorized.

The Southern Pacific and the South San Francisco Belt Railway opposed the application. The Southern Pacific line, the proposed report states, runs parallel with the proposed line and from a few feet to about one mile westerly therefrom. The examiner said in part:

"Considering the present transportation condition on the peninsula and the fact that the Southern Pacific line has capacity largely in excess of its present use it is difficult to find in the facts presented any satisfactory reason for the construction of the proposed line by the applicant within a mile of an existing double track line of excellent character, which is serving well all present needs of the territory."

Heavy Freight Traffic

Freight traffic is now the heaviest ever reported for this season of the year, according to reports filed Sept. 5 by the railroads with the car service division of the American Railway Association. Loading of revenue freight for the week ended on August 24, totaled 1,129,533 cars, which was not only the highest for any week so far this year, but the highest for any corresponding week on record. Compared with the same week last year, this total was an increase of 48,835 cars, while it also was an increase of 20,192 cars over the same week in 1927.

The total for the week of August 24, this year, also was an increase of 29,266 cars over the preceding week this year, increases being reported in the loading of all commodities.

Grains and grain products loading for the week totaled 61,740 cars, an increase of 5,560 cars over the corresponding week last year and 898 cars over the same period in 1927. In the western districts alone, grain and grain products loading amounted to 45,934 cars, an increase of 5,434 cars over the same week in 1928.

All districts except the central western reported increases in the total loading of all commodities compared with the same week in 1928, while all except the Pocahontas and Southern districts showed increases over the same week in 1927.

Railway Construction

Tracks and Yards

ARKANSAS.—A contract has been let by the Arkansas Western to Williams & McWilliamson for a 23.5-mile extension from Waldron to the Southeast. The estimated cost is $420,000.

CALIFORNIA.—The Great Northern has amended its application for a line into Northern California to provide for a route from Klamath Falls, Ore., through the Klamath Valley and Tule Lake district to a terminal at or near Bieber, Cal., to meet a proposed extension of the Western Pacific. The revised line would have a route mileage of 87½.

The Western Pacific has applied for authority to construct a 3¼-mile branch line from Hart to Disappointment Slough to serve a beet sugar factory.

The Great Northern and the Western Pacific have applied for authority to acquire and construct a 36-mile line from Lookout, Modoc County, to a connection with the McCloud River Railroad at Hambone, Siskiyou County.

The Yreka Railroad has asked permission to construct an extension of its line from Yreka City to Etna, 35.2 miles.

CANADA.—The Canadian National has awarded contracts for the grading and installing of culverts for 261 miles on new branch lines, and has received bids for 150 more miles of branch lines in Alberta and Saskatchewan. Bids will be received in September for a line from Sunnybrae, N. S., to Guysboro, 67 miles, estimated to cost $3,500,000; Lake Verde, P. E. I., to Pisquid, 10 miles, estimated to cost $370,000.

FLORIDA. — The Mayo & Cook's Hammock has awarded a contract to E. W. Parker, Tampa, for a line in northern Florida between Mayo and Cook's Hammock, 15 miles, to cost approximately $200,000.

LOUISIANA. — The New Orleans, Texas & Mexico has asked permission to build a line between Baton Rouge and New Orleans.

The Elizabeth Southern has asked permission to build a 40-mile line from Elizabeth, connecting with the Santa Fe, to Kinder, connecting with the Gulf Coast Line.

MISSOURI.—The City of St. Louis has passed an ordinance authorizing the construction and has appropriated funds for the city's share of the cost of a 120-ft. concrete and steel structure to carry the tracks of the Wabash over Kings highway at a cost of $52,000, and for the depression of the Wabash and Rock

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Island tracks through Forest Park, and for the construction of reinforced concrete viaducts to carry Union blvd., Lindell blvd. and Grand Drive over the tracks of the two companies at a cost of $480,000.

The St. Louis Southwestern has let a contract for a line between Gideon and Derring, 20 miles, to Winston Brothers, St. Louis.

MONTANA.—The Northern Pacific has awarded a contract to E. J. Dunnigan, St. Paul, for a double-track cut-off around the yard at Laurel, to cost $175,000.

The Great Northern has amended its application for an extension from a connection with its line at Richey to Jordan, 105 miles.

NEVADA.—The Los Angeles & Salt Lake has permission to build a branch line from near Las Vegas to a point 22 miles easterly. This line, serving the Boulder Canyon region, is expected to cost about $840,000.

NEW MEXICO.—The Santa Fe, San Juan & Northern has asked permission to build an extension to its lines from Tilden to Cuba, about 12 miles, at an estimated cost of $133,114.

TEXAS.—The Santa Fe has let a contract for a 73-mile extension between Pisano and Presidio on the Kansas City, Mexico & Orient to the List Construction Co., Kansas City.

Examiner M. S. Jameson has recommended to the I.C.C. that the application of the Yates & West Texas to build a line from a connection with the Kansas City, Mexico & Orient near Rankin to Sheffield, 43 miles, be approved.

The San Antonio, Uvalde & Gulf has let a contract to William A. Smith, Houston, for a branch line from Brundage to a point five miles south.

Buildings & Structures

ARIZONA.—Tucson. The Southern Pacific will erect an employes' tuberculosis sanitarium to cost $200,000.

CANADA.—Wainwright, Alta. The Canadian National will build a passenger station.

COLORADO.—Fort Collins. The Colorado & Southern has let a contract to the Roberts & Schaefer Co. for an "N. & W." type electric cinder plant here.

—Julesburg. The Union Pacific is planning a passenger station to cost $80,000.

GEORGIA.—Atlanta. The Nashville, Chattanooga & St. Louis has let a contract to the Southern Ferro Concrete Co. for a passenger station to cost about $575,000.

ILLINOIS.—Chicago. The Chicago & North Western has awarded a contract for a one-story and basement brick and concrete fireproof oil storage building at the Chicago avenue shops to the H. A. Peters Co., Chicago. Oil handling facilities will be installed by S. F. Bowser & Co., Inc., Fort Wayne.

The Rock Island has awarded a contract to the T. S. Leake Construction Co. for extensions to the enginehouse at 47th street.

—Landers. The Wabash has let a contract to the Roberts & Schaefer Co. for an "N. & W." type electric cinder plant here.

—Proviso. The Chicago & North Western has awarded a contract to Ogle Construction Co. for one four-track and one three-track electrically operated ash handling plant.

INDIANA.—Altamont. The Big Four has awarded a contract to Ogle Construction Co., Chicago, for a 500-ton electrically operated, reinforced concrete coaling station.

—Boston. The Graver Corpn., East Chicago, Ind., has a contract from the Chesapeake & Ohio for a settling tank for a softening plant here. The tank is 40 ft. in diameter by 43 ft. high and has a downtake 12 ft. in diameter.

IOWA.—Boone. The Chicago & North Western has let a contract to the Graver Corpn., East Chicago, Ind., for an additional tank, 21 ft. in diameter by 52 ft. high, to enlarge the capacity of the tank here from 23,000 to 46,000 gallons an hour.

—Council Bluffs. The Chicago & North Western has let a contract to G. A. Johnson, Council Bluffs, for a 10-stall addition to the enginehouse.

—Davenport. The Rock Island has awarded a contract to the Howlett Construction Co., Moline, for an automatic coaling station.

KANSAS.—Durand. The Roberts & Schaefer Co. has a contract from the Missouri Pacific for a concrete shallow pit automatic electric locomotive coaling plant, and an "N. & W." type electric cinder plant here.

—Newton. M. R. Stauffer, Newton, has a contract from the Santa Fe for a two-story brick and concrete station here.

KENTUCKY.—Louisville. The plans of the Louisville & Nashville for an underpass at Third and K streets have been approved by the board of public works.

LOUISIANA.—Monroe. The Illinois Central has awarded a contract to W. C. Salley, Monroe, for a one-story brick and concrete passenger station, to cost about $100,000.

MICHIGAN.—Pontiac. Ogle Construction Co., Chicago, has a contract from the Grand Trunk for a coaling station and sand handling plant here.

MISSISSIPPI.—Aberdeen. The Frisco has let a contract to the Kershaw Construction Co., Birmingham, for a passenger station.

NEBRASKA.—Omaha. The Rock Island has awarded a contract for a freight station on 16th street to the Parsons Construction Co., Omaha.

NEW JERSEY.—Jersey City. The Pennsylvania has started work on the piling for the first unit of its new $50,000,000 rail-ship terminal on the North River. The terminal when completed will consist of three connected warehouse units and three piers. The first unit will be 160 ft. wide, 300 ft. long, and eight stories high, and the other two will be about twice its width but will be the same in length. The building will be of reinforced concrete, brick and terra cotta. The three piers, which will be adjacent to the warehouse, will be 846 ft. long and 150 ft. wide of concrete. The F. H. McGraw Co., New York, has a contract for the re-location of break-bulk l.c.l. freight facilities in connection with warehouse and freight terminal improvements, to cost $50,000.

—Marion. The Pennsylvania has awarded the following contracts for bridges over the Hackensack River: to the Bethlehem Steel Co., for a lift span, towers and approach spans for a passenger line bridge to cost $1,445,000; to the Phoenix Bridge Co., Phoenixville, Pa., for a lift span, towers and approach spans for a freight line bridge to cost about $670,000; to Senior & Palmer, Inc., New York, for masonry work on west approach to the passenger line bridge, to cost about $576,000; to J. Rich Steers, Inc., New York, for masonry work on east approach for both freight and passenger line bridges, to cost $150,000.

NEW YORK.—Canandaigua. The Pennsylvania has awarded a contract to the Roberts & Schaefer Co., for an "N. & W." type electric cinder handling plant.

—New York. The New York Central is receiving bids for a new commissary building at 161st street and Morris avenue. The building will be two stories high, so constructed that eight additional floors can be added if necessary. The cost of the present structure is estimated at $250,000.

NORTH DAKOTA.—Mandon. The Northern Pacific has awarded a contract for a brick passenger station and restaurant to cost $150,000, to Carl Steen, Grand Forks.

OHIO.—Cincinnati. A contract for the grading for the terminal project in the Mill Creek bottoms has been let by the Cincinnati Union Terminals to Winston Brothers Co., Minneapolis.

OKLAHOMA.—Tulsa. The Tulsa Un-

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ion Depot Co. will build a union depot. The site will be purchased from the Frisco, and the depot will be leased jointly by that railroad, the Missouri-Kansas-Texas and the Santa Fe. The estimated cost of site and building is not to exceed $1,500,000.

PENNSYLVANIA. — Johnstown. The T. J. Foley Co., Pittsburgh, has a contract from the Pennsylvania for an undergrade bridge at Haws crossing and the extension of Stone Arch bridge over the Conemaugh River. Estimated cost, $145,000.

—Lock Haven. Ogle Construction Co. has a contract from the Pennsylvania for a single track ash handling plant and a single track automatic direct coaler.

—Philadelphia. The Pennsylvania has let a contract to the Vare Construction Co., Philadelphia, for foundations for the catenary system in connection with the electrification work between 52nd street and Franklin avenue, Norristown, to cost $315,000.

—Pittsburgh. The Pennsylvania has let a contract to W. F. Trumble & Sons Co., Pittsburgh, for a $1,000,000 freight house on 11th street.

WISCONSIN.—Adams. The Chicago & North Western has awarded a contract to Ogle Construction Co. for a two-track ash handling plant.

—Clyman Junction. The Chicago & North Western has let a contract to the Graver Corpn., East Chicago, Ind., for a water softening plant here, for one at South Janesville, and one at Jefferson Junction. The plant at Clyman Junction will be 20,000 gallons an hour with storage for 60,000 gallons; the one at South Janesville will be 15,000 gallons an hour with storage for 35,000 gallons, and the one at Jefferson Junction will be 12,500 gallons an hour with storage for 50,000 gallons. These plants will be equipped with the Graver chemical control equipment.

—Jefferson Junction. See Clyman Junction.

—South Janesville. See Clyman Junction.

—La Crosse. The Railroad Water & Coal Handling Co. has been awarded a contract by the Milwaukee for a 15,000 gallon-an-hour capacity pumping station.

WYOMING.—Cheyenne. The Union Pacific is planning an enginehouse and shop facilities.

Locomotive Orders

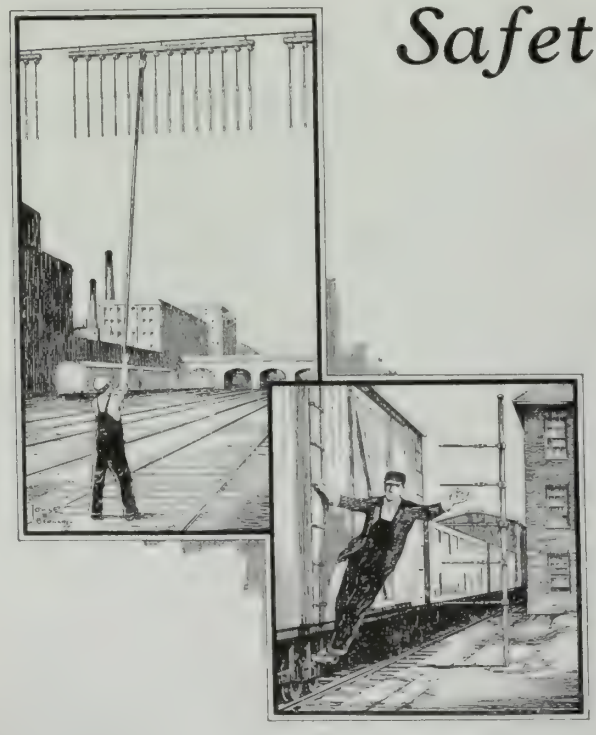
According to reports filed with the A. R. A., locomotives in need of repair on the Class I railroads August 15 totaled 8,193 or 14.3 per cent of the number on line, 7.8 per cent in need of classified repairs and 6.5 per cent in need of running repairs. This was an increase of 512 compared with the number on August 1 when there were 7,681 or 13.4 per cent. Serviceable locomotives in storage August 15 totaled 5,114 compared with 5,306 on August 1.

The Nashville, Chattanooga & St. Louis is inquiring for five Mountain type; Great Northern, two electric; South Buffalo, three switchers; Argentine State Railroads, two or three Garrett type; Condon, Kinzua & Southern, one 2-10-2 type; Natchez, Columbia & Mobile, one or two 2-8-2 type.

The New York Central ordered 35 oil-electric switchers from American; Western Electric, one oil-electric from Westinghouse; Chilean State Railways, five from Baldwin; American Rolling Mill Co., two oil-electric from Ingersoll-Rand, General Electric and American Locomotive.

Passenger Car Orders

Orders for passenger cars placed since the August issue of Transportation include the following: Chicago & Alton, two postal cars, two passenger and baggage cars and one baggage and mail



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car with Pullman; Chicago & North Western, 24 suburban coaches with Standard Steel Car Co.; New Haven, one club car with Osgood-Bradley Car Co.; Brooklyn & Queens Transit, 50 surface cars with Osgood-Bradley Car Co., 50 surface cars and 100 sets of trucks with J. G. Brill Co.; Canadian National, one gasoline passenger and baggage rail motor car with J. G. Brill Co.; Consolidated Railroads of Cuba, four gasoline passenger and baggage rail motor cars with J. G. Brill Co.; Lackawanna, 141 electric motor cars with Pullman, conversion of 141 suburban coaches to trailer cars with American Car & Fdy. Co., two mail and baggage cars with American Car & Fdy. Co.

The New Haven is inquiring for five oil-electric rail motor cars.

Freight Car Orders

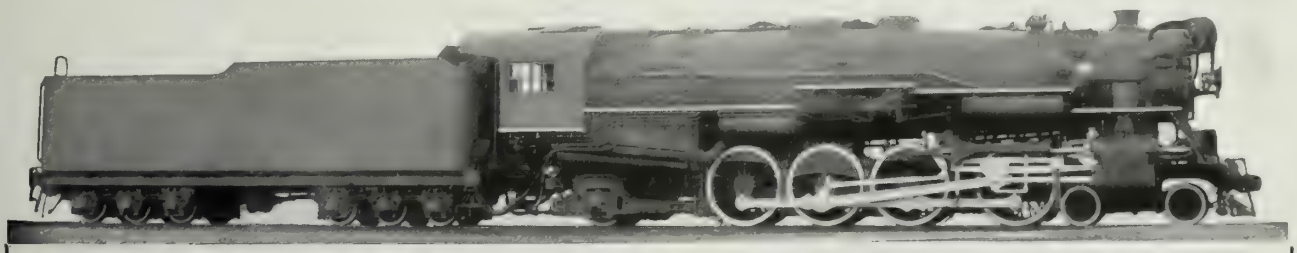
According to reports filed by the carriers with the car service division of the A.R.A., Class I railroads had 134,594 freight cars in need of repair August 15, or 6.1 per cent of the number on line, 4.4 per cent in need of heavy repairs and 1.7 per cent in need of light repairs. This was a reduction of 2,901 cars below the number reported August 1, at which time there were 137,495 or 6.2 per cent.

The Birmingham Southern is inquiring for 25 box cars; Central of Georgia, 500 gondolas and 50 flat cars; Southern Pacific, Texas Lines, parts to rebuild 400 box cars; Texas Company, four tank cars; Santa Fe, 200 underframes for gondolas.

The Braden Copper Co. ordered 23 flat cars from American Car & Fdy. Co.; Central of New Jersey, 200 gondolas from Bethlehem Steel Co.; Lackawanna, 250 hoppers and 700 box cars from American Car & Fdy. Co., and 300 box cars from Magor Car Corpn.; Great Northern, 300 flat cars from Standard Steel Car Co.; North American Car Corpn., 500 tank cars from Pressed Steel Car Co.; Reading Co., 200 gondolas from Bethlehem Steel Co.; Cities Service Tank Line, four tank cars from American Car & Fdy. Co.; Elgin, Joliet & Eastern, 25 air dump cars from Magor Car Corpn., and 25 air dump cars from Differential Steel Car Co.; Great Western, two cabooses from Mt. Vernon Car Mfg. Co.; Moss Tie Co., one special box car from Mt. Vernon Car Mfg. Co.; Moss Tie Co., one special box car from Mt. Vernon Car Mfg. Co.; Philadelphia & Reading Coal & Iron Co., ten dump cars from American Car & Fdy. Co.; Phillips Petroleum Co., ten tank cars from General American Tank Car Corpn., and five tank cars from American Car & Fdy. Co.

Bus Orders

Recent bus orders include the following: Atlantic City & Shore Line, four 29-passenger Yellows; Atlantic Stages Inc. of Philadelphia, two 29-passenger Mack parlor car buses and two Mack observation car buses; Baltimore & Ohio, three 23-passenger A. C. F. parlor coaches; Blue Club Coach Lines, four 29-passenger Macks; Boston Elevated Railway, five 40-passenger A. C. F. metropolitan coaches; Boston, Worcester & New York Street Ry., Framingham, one 29-passenger Mack; Brooklyn & Queens Transit Corpn., four 33-passenger A. C. F. street car type; Denver Tramway Corpn., one 29-passenger Mack and one 23-passenger A. C. F. urban; El Paso Electric Co., one White; Interstate Transit Lines, 44 White parlor coaches; Lehigh Valley Transit Co., two 29-passenger Macks; Missouri Pacific Transportation Co., one Yellow; Northampton Street Ry. Co., two 25-passenger Macks; Pickwick Stages, four Mack chassis; Potomac Edison Co., six Yellows; Reading Transportation Co., four Yellows; Richmond, Fredericksburg & Potomac, two A. C. F. chassis; Sioux Falls Traction Co., four Yellows; Union Pacific Stages, three Yellows; Virginia Electric & Power Co., ten Twin coaches; Wheeling Traction, five 20-passenger Studebakers.



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Changes in Personnel

Executive & Operating

The Frisco announces two operating districts, the first comprising the northern, southern and river divisions and the Kansas City, Memphis and Birmingham terminals, under the jurisdiction of **M. M. Sisson,** assistant general manager; the second, comprising the eastern, central, southwestern and western divisions, and the St. Louis, Springfield and Tulsa terminals, under the jurisdiction of **C. J. Stephenson,** who has been promoted from assistant to the general manager to assistant general manager.

John Callaghan, deputy minister of railways and telephones for the Province of Alberta, and general manager and chief engineer of the Edmonton, Dunvegan & British Columbia, has been appointed general manager of the Northern Alberta, with headquarters as before at Edmonton.

W. H. Ruthven, assistant superintendent on the British Columbia district of the Canadian Pacific at Revelstoke, B. C., has been appointed superintendent of the Lethbridge division of the Alberta district, with headquarters at Lethbridge.

H. T. Malcomson, general manager of the Toronto, Hamilton & Buffalo, at Toronto, has been appointed vice president and general manager.

R. M. D. Richardson and **Michael Gerome** have been elected vice presidents of the Louisiana & Arkansas, with headquarters at New York.

Robert Rice, vice president of the Colorado & Southern at Denver, has also been elected president of the Denver Union Terminal. **J. S. Pyeatt,** president of the Denver & Rio Grande Western, has also been elected vice president.

G. F. McGettrick has been appointed car service agent of the Central Vermont, with headquarters at St. Albans.

O. E. West, assistant chief of yard and terminal operations of the Baltimore & Ohio, has been appointed chief of yard and terminal operations, with headquarters as before at Baltimore, succeeding **E. T. Horn,** who has been relieved of active service owing to ill health.

H. A. Mitchell, vice president of the Sacramento Northern, has been elected president, succeeding **H. M. Adams,** president of the Western Pacific.

Financial & Legal

C. H. Hickie, general paymaster of the central region of the Canadian National, at Toronto, has been appointed treasurer and paymaster of the Northern Alberta, with headquarters at Edmonton. **F. J. Kavanagh,** auditor of joint facilities of the Canadian Pacific, with headquarters at Montreal, has been appointed auditor of the Northern Alberta, with headquarters at Edmonton. **Henry Phillips,** assistant secretary of the Canadian National at Montreal, has also been appointed secretary of the Northern Alberta.

J. L. Ronnow has been appointed attorney in California for the Los Angeles & Salt Lake unit of the Union Pacific System.

M. C. Hall has been appointed general attorney of the Chesakpeake & Ohio, with headquarters at Richmond.

J. A. Commiskey has been appointed

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UNIVERSALLY STANDARD
O.F. JORDAN COMPANY
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JORDAN
SPREADER - DITCHER

Indispensable in mines, on railways, public works, industrial plants, etc.

Built in Standard and Narrow Gauge Sizes

assistant secretary of the Mobile & Ohio with headquarters at St. Louis.

Purchases & Stores

H. C. Pearce, director of purchases and stores of the Chesapeake & Ohio, has also been appointed director of purchases and stores of the Pere Marquette, with headquarters at Cleveland.

F. W. Mahl, general purchasing agent of the Southern Pacific at San Francisco, after 30 years' service, has been granted leave of absence pending retirement. The work formerly handled by Mr. Mahl will in future come under the jurisdiction of **F. W. Taylor,** purchasing agent.

W. E. F. Kirk, division storekeeper of the Santa Fe at Ottawa, Kansas, has been appointed general lumber supervisor at Topeka. **A. B. Sears,** storekeeper at Waynoka, Okla., succeeds Mr. Kirk as division storekeeper at Ottawa.

A. R. Rutherford, stationer of the Union Pacific Railroad, has been appointed general stationer of the Union Pacific System, with headquarters as before at Omaha.

Traffic

The Buffalo, Rochester & Pittsburgh announces the following promotions: **Raymond W. Anderson,** assistant general freight agent at Rochester, to coal traffic manager with the same headquarters; **George E. Merchant,** coal traffic agent to division freight agent, with headquarters at Rochester; **Joshua E. Steele,** commercial freight agent to district freight agent with headquarters at Rochester.

Edward A. Hynes, assistant general freight agent of the Chicago & Alton at Chicago, has been appointed executive general agent with headquarters at St. Louis, succeeding **Merle W. Dancy,** who resigned to become chief traffic officer of the newly organized barge line operating between Cincinnati and New Orleans. **John H. Walkmeyer,** general agent at Pittsburgh, succeeds Mr. Hynes as assistant general freight agent at Chicago.

James E. Driscoll, traveling passenger agent of the Great Northern, has been appointed general passenger agent with headquarters as before at San Francisco.

The Canadian National announces the following changes in the freight traffic department in Western Canada: **J. M. Horn,** general freight agent at Vancouver, to assistant freight traffic manager at Winnipeg; **J. M. Macrae,** assistant general freight agent at Winnipeg, to general freight agent at Vancouver; **Walter Hately,** assistant general freight agent at Winnipeg, to general freight agent at Winnipeg. **A. E. Rosevear,** general freight agent at Winnipeg, has been assigned to other duties until December 15, when he will retire, having completed 52 years' continuous service.

M. A. Degnan has been appointed general agent of the Chicago, Springfield & St. Louis with headquarters at Memphis.

Edward H. Sharpe, assistant manager of development and colonization of the Southern Pacific at San Francisco, has resigned to become director of public relations of the Aviation Corpn. at New York.

John F. Dalton, general freight and passenger agent of the Norfolk Southern, has been appointed traffic manager, with headquarters as before at Norfolk.

Frank J. Berry, general agent of the Northern Pacific at Spokane, has been appointed assistant general freight agent at Seattle. J. Roddy, general agent at San Francisco, succeeds Mr. Berry at Spokane.

O. F. Shedd has been appointed general agent of the Michigan Central, with jurisdiction over the railroad's properties in St. Joseph and Benton Harbor, Mich.

A. Drahos, commercial agent of the Norfolk & Western at Denver, has been appointed Pacific Coast agent, in charge of the new agency to be established in San Francisco.

Ray L. DePew, assistant general freight agent of the Mobile & Ohio at St. Louis, has been assigned to other duties because of ill health. He is to be

The Bird-Archer Company

1 E. 42nd St., New York City

Realizing that in order to make the Bird-Archer Boiler Chemical treatment a success, locomotive boilers must be blown regularly, this Company has placed on the market a Blow-off Cock, with various types and sizes to meet the requirements of the railroads. Our latest booklet will be mailed to you from our nearest office upon request.

FLANGE
Blow-Off Cock with Joint-Ring Strainer
(Northwestern Type)

PHILADELPHIA CHICAGO ST. LOUIS MONTREAL WINNIPEG
BUENOS AIRES MANILA AUSTRALIA

special traffic representative at St. Louis. **I. H. Wente**, commercial agent at Atlanta, succeeds Mr. DePew at St. Louis. **O. D. Penniman** has been appointed commercial agent at Atlanta; **W. F. Wilson**, commercial agent at St. Louis; **H. A. Talley**, freight traffic representative at Detroit; **Arthur A. Appel**, industrial agent at St. Louis.

Mechanical

F. R. Butts, assistant master mechanic of the Hannibal division of the Burlington, with headquarters at Brookfield, Mo., has been appointed master mechanic of the Creston and West Ottumwa divisions, with headquarters at Creston, Iowa. **H. E. Felter** succeeds Mr. Butts as assistant master mechanic at Brookfield.

Robert H. Nicholas, assistant master mechanic of the Central of New Jersey, has been appointed general locomotive inspector, with headquarters as before at Jersey City, succeeding **C. H. Van Why**, retired. The position of assistant master mechanic has been abolished.

E. L. Phelps, car foreman of the Frisco at Oklahoma City, has been appointed general car foreman with headquarters at West Tulsa, succeeding **J. S. Jowers**, resigned.

A. F. Moore, general foreman of the Pennsylvania at Columbus, has been appointed assistant chief car inspector in the office of the general superintendent of motive power at Chicago, succeeding **P. S. Walter**, retired.

Marvin A. Williamson has been appointed car foreman of the Oregon-Washington R.R. & Navigation Co. at Umatilla.

Edward C. Richards, assistant to the superintendent of rolling stock of the Michigan Central, has been appointed superintendent of rolling stock, with headquarters at Detroit, succeeding **J. T. Downs**, deceased.

S. S. Talbert, general foreman of the Louisville & Nashville at the Mobile shops, has been appointed master mechanic with the same headquarters, succeeding **J. D. Maxwell**, deceased.

James Paul, superintendent of motive power of the Atlantic Coast Line, with headquarters at Tampa, has been appointed general superintendent of motive power with headquarters at Wilmington. **James Grant**, shop superintendent at Tampa, succeeds Mr. Paul as superintendent of motive power at Tampa.

The Master Boiler Makers' Association announces the following changes: Albert F. Stiglmeier, secretary; Charles J. Longacre, chairman executive board; John Harthill, secretary executive board. The office of the secretary has been moved from 26 Cortland street, New York, to 29 Parkwood street, Albany.

Civil

W. W. Kelly, district engineer of the coast lines of the Santa Fe, with headquarters at Los Angeles, has been appointed chief engineer of the western lines, with headquarters at Amarillo, succeeding **M. C. Blanchard.**

A. A. Miller has resumed his duties as engineer of maintenance of way of the Missouri Pacific, with headquarters at St. Louis. **W. H. Vance**, who served temporarily as acting engineer of maintenance of way, has returned to his former position as assistant engineer of maintenance of way.

J. C. Bousfield has been appointed construction engineer of the Wabash, with headquarters at St. Louis. Mr. Bousfield was at one time division engineer of the Detroit terminal division and recently in charge of the construction of the Wabash Union Produce Terminal at Detroit.

C. F. Miller, supervisor on the Pittsburgh division of the Pennsylvania at Gallitzin, Pa., has been appointed assistant division engineer on the eastern division. **A. F. Randolph**, assistant to division engineer of the middle division, has been appointed engineer in the office of the chief engineer maintenance of way, with headquarters at Philadelphia.

WHAT PRICE RAILROADS?

How important are railroads?

Calvin Coolidge recently said: "The railroads are so important an industry in this country that when they are prosperous they carry prosperity to many other allied industries."

Rail service within the last ten years has so improved in speed and dependability that merchants have been enabled to greatly reduce their stocks on hand. 'Hand to mouth' purchasing has not only released for productive use hundreds of millions of dollars once 'tied up' in surplus stocks, but has so stabilized production as to make improbable those costly waves of unemployment formerly commonplace.

More than 14,000,000 workers thus assured of continuous employment sustain markets for Pacific Coast products. Last year, in addition to spending $211,476,948 for wages, materials and supplies, and $21,525,425 for taxes, Southern Pacific, maintaining efficient and dependable service, aided materially in stabilizing employment for this army of American workingmen and consumers.

SOUTHERN PACIFIC

Tony Zangar has been appointed roadmaster of the Northern Pacific at Spokane, succeeding **Andrew Larson,** who has been granted leave of absence.

H. M. Church, division engineer of the Hinton division of the Chesapeake & Ohio, has been appointed general supervisor of bridges and buildings, with headquarters at Richmond.

R. B. Hennessy has been appointed bridge engineer of the Frisco with headquarters at St. Louis, succeeding **Ralph E. Miller**, deceased.

Obituary

J. M. Brown, assistant to the vice president of the Rock Island, died at Chicago, August 19, from pleurisy.

R. D. Hawkins, general superintendent of motive power of the Atlantic Coast Line at Wilmington, died August 7.

John H. Murphy, acting president of the New Orleans Public Belt, and president of the John H. Murphy Iron Works, died at New Orleans, August 15.

J. Ward Allison, freight traffic manager of the Western Maryland, at Baltimore, died in that city on July 5.

Robert L. Porter, assistant secretary of the Chicago & Western Indiana and the Belt Railway of Chicago, died in La Grange, Ill., August 24.

Leonard T. Johnston, division superintendent of the Milwaukee at Minneapolis, died in that city August 16 following a long illness.

Luther B. McMillan, chief engineer of the Johns-Manville Corpn., New York, died in a hospital on August 10 from the effects of injuries received in an airplane accident the previous day at the municipal airport at Newark, N. J.

Ernest S. Mudge, valuation engineer of the western lines of the Santa Fe at Amarillo, died on July 12 after a long illness. Mr. Mudge had been connected with the Santa Fe for more than 35 years.

Oscar S. Major, signal engineer of the Kansas City Southern at Kansas City, died unexpectedly at Mulberry, Kan., August 15.

J. D. Reid, former Canadian minister of railways and canals, died at his home in Prescott, Ont., August 26, after a short illness.

H. S. Folker, chief engineer of the National Safety Appliance Co., San Francisco, died August 11.

Thomas Rodd, former chief engineer of the Pennsylvania and the Chicago Union Station Co., died at Pittsburgh, August 3.

H. S. Clark, Pacific manager of the Westinghouse Air Brake Co., San Francisco, also a director and vice president of the Westinghouse Pacific Coast Brake Co., Emeryville, died August 16, aged 57.

Charles B. Rodgers, formerly general manager of the Davenport, Rock Island & North Western with headquarters at Davenport, died August 19 following a protracted illness.

John D. Hurley, president of the Independent Pneumatic Tool Co., died August 15 following a heart attack.

Supply Trade Notes

The **Continental Brake Shoe & Equipment Co.,** New York, has opened an office in the Terminal Tower, Cleveland, in charge of **Paul Zens,** who has been elected a vice president of the company.

The **National Bearing Metals Corpn.** has moved its office from 30 Church street to 230 Park avenue, New York City.

G. A. Secor, district sales manager of the **Buda Company,** at St. Louis, has been appointed sales manager with headquarters at Chicago, succeeding **J. L. Artmaier.**

William McBride, formerly president of the **Fort Pitt Spring & Mfg. Co.,** Pittsburgh, has been elected president of the **Mead-Penn Iron Works Co.,** Meadville, Pa.

The **General Steel Castings Corpn.** has acquired all the assets of the **Commonwealth Steel Company,** Granite City, Ill. The officers of the General Steel Castings Corpn. are: **R. H. Ripley,** president; **H. M. Pflager,** vice president; **A. S. Blagden,** vice president and general manager of the Eddystone division; **Harris Hoblitzelle,** vice president and general manager of the Commonwealth division; **G. H. Alston,** secretary and

HOTEL MONTCLAIR

Room and Bath
Tub and Shower
$3 to $5
per day
For 2 persons
$4 to $6
per day
Suites
$8 to $12
per day
Special Monthly and Yearly Rates

49th to 50th Sts.
Lexington Ave.
NEW YORK CITY

800 Rooms
Each with Tub and Shower

Radio in Every Room

3 minutes' walk from Grand Central. Times Square, Fifth Avenue Shops important commercial centers, leading shops and theatres nearby. 10 minutes to Penn. Station.

Grand Central Palace only 2 short blocks away

S. Gregory Taylor
President

Oscar W. Richards
Manager

An innovation
IN
Travel Comfort
Sun-Lounge Cars
ON THE
Capitol *Limited*
between Chicago-Washington and the East
Lv. Chicago - - - - 1.00 p.m.

IN keeping with its endeavor to provide the greatest measure of travel comfort and convenience for its patrons, the Baltimore & Ohio has now placed in service on *The* CAPITOL *Limited* new sun-room parlor-observation-lounge cars.

A spacious glass-enclosed sun-room, comfortably seating eight people, affords a splendid opportunity to view the passing scenery without the discomfort of dust and inclement weather.

An unusually large lounge, pleasingly decorated and furnished with comfortable chairs, settees and lounges of walnut, upholstered in colorful designs of mohair plush, writing desks, periodical and end tables, with softly shaded lamps.

Passengers may partake of their favorite soft drink and light refreshment served from the fully equipped soda fountain buffet.

The CAPITOL *Limited* also carries a Club Car and such special features as Train Secretary, Maid-Manicure, Barber-Valet and Shower Bath; Newspapers and Magazines.

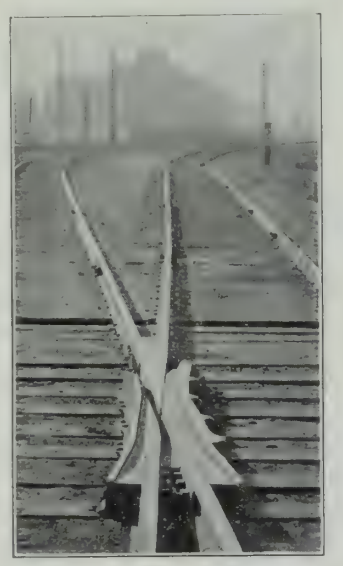
Baltimore & Ohio

CONLEY

Solid Manganese

Self Guarded

SPRING FROGS



SHOWING SPRING FROG IN SERVICE

Are giving excellent service under severe traffic conditions on Railroads using them.

Twenty years successful service by CONLEY TYPE FROGS have demonstrated their merit for safe and economical service.

CONLEY FROG & SWITCH CO.

Memphis, Tenn.

treasurer. **C. H. Howard** will act as chairman of the board.

The **Rome Iron Mills, Inc.**, announce they have leased their plant at Rome, N. Y., to the **Wrought Iron Company of America.** The mill organization has been retained.

W. J. Beck, director of research of the **American Rolling Mill Co.**, Middletown, Ohio, has been appointed assistant to **Charles R. Hook**, general manager, in direct charge of the development in electrical steel sheets for magnetic purposes. **Dr. Anson Hayes** has been appointed director of research in charge of all metallurgical research problems.

C. A. Lyon, sales engineer of the **Standard Automatic Signal Corpn.**, Chicago, has resigned to become signal and electrical engineer for the **Kahler Co.**, Burbank, Cal.

Harry S. Peck, sales representative of the **Edison Storage Battery Co.** at Chicago, has been appointed manager of western railroad sales with the same headquarters.

C. E. Leach, assistant manager of sales of the **New York Air Brake Co.**, New York, has been elected a director and secretary and treasurer, succeeding **R. B. Sheridan**, resigned. **C. B. Lesser**, comptroller, has been elected vice president, retaining his office as comptroller.

F. R. Cotham, chief engineer of the Piedmont & Northern at Charlotte, N. C., has resigned to become vice president and general manager of the **Beauharnois Construction Co.**, Beauharnois, Que.

The **Orton Crane & Shovel Co.**, Chicago, announces the appointment of **Thomas D. Crowley & Co.**, 8 So. Michigan avenue, Chicago, as special railway sales representative in the United States.

The Chicago offices of **W. M. Wilson**, representative of the **Flannery Bolt Co.**, Pittsburgh, are now at Willoughby Tower, 8 So. Michigan avenue.

Fred M. Cross, manager of the pneumatic tool sales department of the **Ingersoll-Rand Co.**, for the Chicago office, has been appointed assistant general manager of pneumatic tool sales with headquarters at New York. **D. W. Zimmerman** succeeds Mr. Cross at Chicago.

George R. Harrison has been appointed representative for the **Reading Chain & Block Corpn.**, Reading, Pa., with offices at 362 Rockefeller building, Cleveland.

903 Miles of Wire and Cable

The Lackawanna Railroad has ordered 4,773,000 feet or approximately 903 miles of wire and cable, weighing 3,220,000 pounds or 1,610 tons, for use in connection with the electrification of 70 miles of road or 160 miles of track in the northern New Jersey suburban zone. The successful bidders were Anaconda Wire & Cable Co., New York; Bridgeport Brass Co., Bridgeport, Conn.; American Electric Works, Phillipsdale, R. I., and the Standard Underground Cable Co., New York.

Improvements on Fairmont MM9 Inspection Car

Fairmont Railway Motors, Inc., of Fairmont, Minn., announce the following improvements to their 395-lb. water cooled MM9 Inspection car. Where large amounts of material must be carried, long trays can be furnished at nominal extra cost. Either one or two trays may be used. Another desirable new extra is a soft but durable waterproof cushion. All following features are standard equipment at no extra cost. The seat has been extended four inches farther back. The rear safety rail is changed from aluminum to steel so it may be used as a handle to set the car on and off track. The back end has proved to be so light that few operators use the extension easy lift levers except in soft ballast. The engine is started without pushing the car, by a long starting crank supported in an outboard bearing on the left side. Easy starting in cold weather is assured by an Imperial Primer which delivers an atomized spray of firable gasoline directly above the intake port. Engine balance has been improved by careful testing and all vertical engine vibration eliminated from the seat.

The four-wheel brake is controlled by a separate lever which may be hooked in set position to hold the car stationary during momentary pauses for inspection. The belt tension is independently controlled by a lever which may be set in intermediate position to relieve power impulses when the car is running slowly. One new feature of the 4-spoke malleable wheel spiders is a safety disc on the inner side. This prevents material on the car working into the wheel. A great maintenance improvement is the demountable wheel which saves all time and trouble re-gauging and re-aligning which formerly was necessary when one-piece wheels were changed and insulations refitted. Now the maintainer simply changes tires instead of wheels.

The most outstanding and absolutely exclusive feature of the MM9 car is its 14-inch Torpedo Proof tires. Made of electric steel with a high manganese content, it requires the best tool steel obtainable to machine the tread, flange and spoke seats. Heat treating makes them so tough that the flange can be bent back flat with the tread without fracture. Thirty mountain type torpedoes in a row were unable to deform this tire, though they almost derailed the car. Without doubt this tire will outlast three of any kind previously used on Fairmont cars.

'RALSTON BUILT'

Steel and Composite Cars

Completely rebuilding large numbers of steel cars in record time is an achievement that Ralston Steel Car Company has repeated time and time again.

This is possible only through our excellent facilities and well-balanced program, which, together with skilled workmen and competent engineers, keep the cars moving through the plant on regular schedule.

THE RALSTON PLANT is equipped to build New Cars, to Rebuild Old Cars, to Repair and to supply repair parts. All materials and work of the highest QUALITY and performed under expert Engineering Supervision.

RALSTON STEEL CAR CO.
COLUMBUS, OHIO

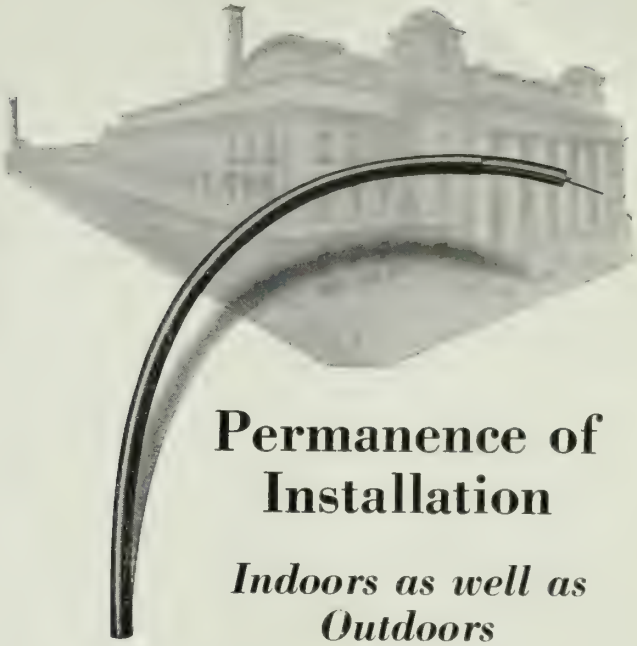
The Only *extra fast*
and extra fare train from Southern California

58 hours Los Angeles to Chicago
47 hours to Kansas City

Fred Harvey Dining and Club Cars

JAS. B. DUFFY, General Passenger Agent
Los Angeles

W. J. BLACK, Passenger Traffic Manager
Chicago



Permanence of Installation

Indoors as well as Outdoors

AT the Chicago Terminal of the Chicago and North Western Railroad, OKONITE Wires and Cables were used for wiring within the building as well as in the yards and along the tracks serving this famous terminal. Time and other destructive agencies affect a wiring system indoors as well as outdoors. OKONITE Wires and Cables, therefore, are made to meet all conditions and to insure, wherever and however used, the utmost permanence in installation.

The Okonite Company
FOUNDED 1878
The Okonite-Callender Cable Company, Inc.
Factories: Passaic, N. J. :: Paterson, N. J.
Sales Offices: New York Chicago Pittsburgh St. Louis Atlanta Birmingham San Francisco Los Angeles Seattle Dallas

General Electric Supply Corp., Boston, Mass.
Novelty Electric Co., Philadelphia, Pa.
F. D. Lawrence Electric Co., Cincinnati, O.

Canadian Representatives
Engineering Materials Limited, Montreal
Cuban Representatives
Victor G. Mendoza Co. Havana

OKONITE
OKONITE-CALLENDER

A New Type B Sludge Remover

Locomotive boilers operating in districts requiring water treatment, must carry efficient blow-off equipment whether the treatment is external or internal. A severe foaming tendency usually is found due to some delayed reaction precipitating solids in the boilers, and to excess alkalinity. Where treatment is internal, all of the solids of the water are deposited in the boilers and must be ejected. In either event an efficient sludge removing equipment makes possible reasonably long mileages between washouts, not otherwise possible. On extended locomotive runs the limiting feature is the condition of the boiler. Here again an efficient blow-off equipment is of the utmost importance. The greatest success in pre-steaming, water treatment and extended runs is secured by the roads that give their boiler blow-off equipment the best attention.

One large trunk line extended its locomotive mileage between washouts or water changes on one of its most important districts, from 360 miles to more than 7000 miles, and has arranged to install the Bird-Archer sludge remover on all of its heavy power.

The new Bird-Archer sludge remover not only removes practically all precipitated solid matter from the boilers, but it also provides a quick and convenient means of connecting with pre-steaming plants and to the enginehouse blowdown and fill-up lines. It also provides internal washout nozzles to facilitate the washing of the boilers monthly as required by the I. C. C. rules.

This new type sludge remover has three separate boiler openings, controlled by one lever, with internal piping reaching throughout the length of the bottom of the barrel of the boiler and to both front and back water legs of the fire box. On the road, this equipment blows through a muffler but when used in the terminals as a pre-steaming connection, or in the enginehouse as a connection to modern boiler washing plants, the muffler is shut off, and one connection only is made on the most convenient side of the engine, thus making use of all three boiler openings.

For years a blow-off cock of about 1½ inch diameter of full opening has been used for locomotives of all sizes. Obviously, unless this blow-off cock was too large for the small engines, it is far too small for the large ones built within the last 15 years. The Bird-Archer sludge remover corrects this inconsistency by providing three 1½ inch openings, giving approximately five times the area for the very necessary function required. The apparatus is not expensive. In bad water districts its cost always will be more than balanced by the savings effected in one month.

It may be argued that this equipment might affect fuel consumption disadvantageously, but the contrary is the case in practice. It is true that fuel is wasted in blowing hot water out of the boiler in service, but if, as is the case, the use of this equipment saves a large proportion of boiler washings then it promotes fuel economy. It is cheaper to blow a few hundred gallons of hot water out of a locomotive in service, than to drain several thousand gallons out at the terminals. Even if in modern enginehouses much of the heat is saved, this heat is used merely to warm the washout water and to warm the fill-up water slightly.

This type of blow-off cock has only 5½ inches of horizontal extension dimension from the fire box side sheet. Since practically all locomotives recently designed require the last available inch in side clearance, the blow-off cock is the limiting feature, and the usual measurement is over 11½ inches. Therefore this device provides an allowance of 12 inches increased grate area measured by the width of the fire box.

The blow-off cock used with this equipment is known as the Bird-Archer Narrow Clearance Type and has the same features as the older standard types of Bird Archer valve in that its valve may be ground in under pressure.

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Center Plates
Draw Bar Yokes
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and
Miscellaneous Forgings

Send us your specifications

Steel Car Forge Company

Pittsburgh New York Chicago Baltimore

Gas-Electrics need this aid to speed and comfort

WHEREVER passenger cars are whirring over endless rails, Balsam-Wool Blanket is needed to perform an important duty. Especially is this true with self-propelled cars with their weight of extra equipment.

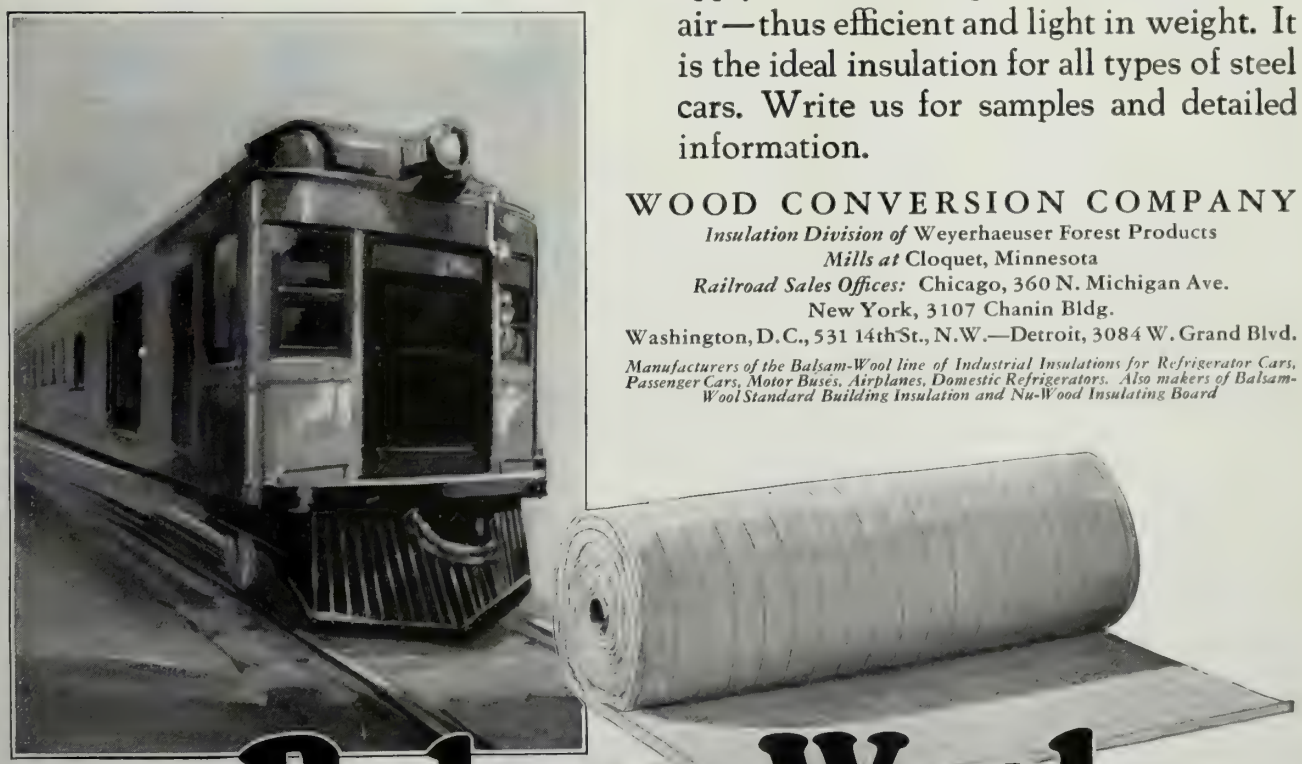
Balsam-Wool built into car walls helps to deaden the roar of high speed travel and insulates against heat and cold. In summer the car is kept cooler, in winter it is warmer. And because Balsam-Wool is so *light*, as well as efficient, dead haul weight is reduced to a minimum. That means lower running costs, greater profits.

The highly fire-resistant Balsam-Wool mat is covered with asbestos, thus maintaining the especially high degree of safety necessary in passenger equipment. The covering is reinforced with a protective fabric to resist the wear of nail caps and bands. Balsam-Wool Passenger Car Insulation meets all the rigid requirements for railway mail cars.

Balsam-Wool is *flexible* — thus easy to apply in hard-to-fit places. It is 95% "still" air — thus efficient and light in weight. It is the ideal insulation for all types of steel cars. Write us for samples and detailed information.

WOOD CONVERSION COMPANY
Insulation Division of Weyerhaeuser Forest Products
Mills at Cloquet, Minnesota
Railroad Sales Offices: Chicago, 360 N. Michigan Ave.
New York, 3107 Chanin Bldg.
Washington, D.C., 531 14th St., N.W.—Detroit, 3084 W. Grand Blvd.

Manufacturers of the Balsam-Wool line of Industrial Insulations for Refrigerator Cars, Passenger Cars, Motor Buses, Airplanes, Domestic Refrigerators. Also makers of Balsam-Wool Standard Building Insulation and Nu-Wood Insulating Board



Balsam-Wool Blanket

To those who do not yet know

SESSIONS-STANDARD

DRAFT GEAR PROTECTION

why not find out?

STANDARD COUPLER CO.

NEW YORK CHICAGO

CALIFORNIA

Transportation

The National Monthly of the Transportation Industry

CALIFORNIA STATE LIBRARY

Vol. V October 1929 No. 4

The "Betty Zane" Hyatt Equipped on the B and O

Smooth-rolling bearings on the journals of this Hyatt equipped diner offer an indication of the continued search by the Baltimore & Ohio Railroad Company to make their service outstanding from every angle.

In all railroad applications as friction-free Hyatts replace plain brass journals, jerky starting and sluggish pick-ups are eliminated and smooth, quiet, joltless, comfortable riding follows.

And just as the Hyattway is the Comfort Way for the traveler so, too, is the Hyattway the Saving Way for the railroads.

The "Betty Zane" (well-known to B & O patrons) was equipped with Hyatts a year and one-half ago at Mt. Clare shops, without a single change to any truck part, of course.

Locomotives, freed of their sluggish loads, pull more cars. Hot boxes are banished. Schedules are easier met. Maintenance costs, with less need for attention and replacements, are substantially reduced.

Any improvement which offers such attractions in the way of passenger comfort and returns on your investment, should be worthy of careful consideration.

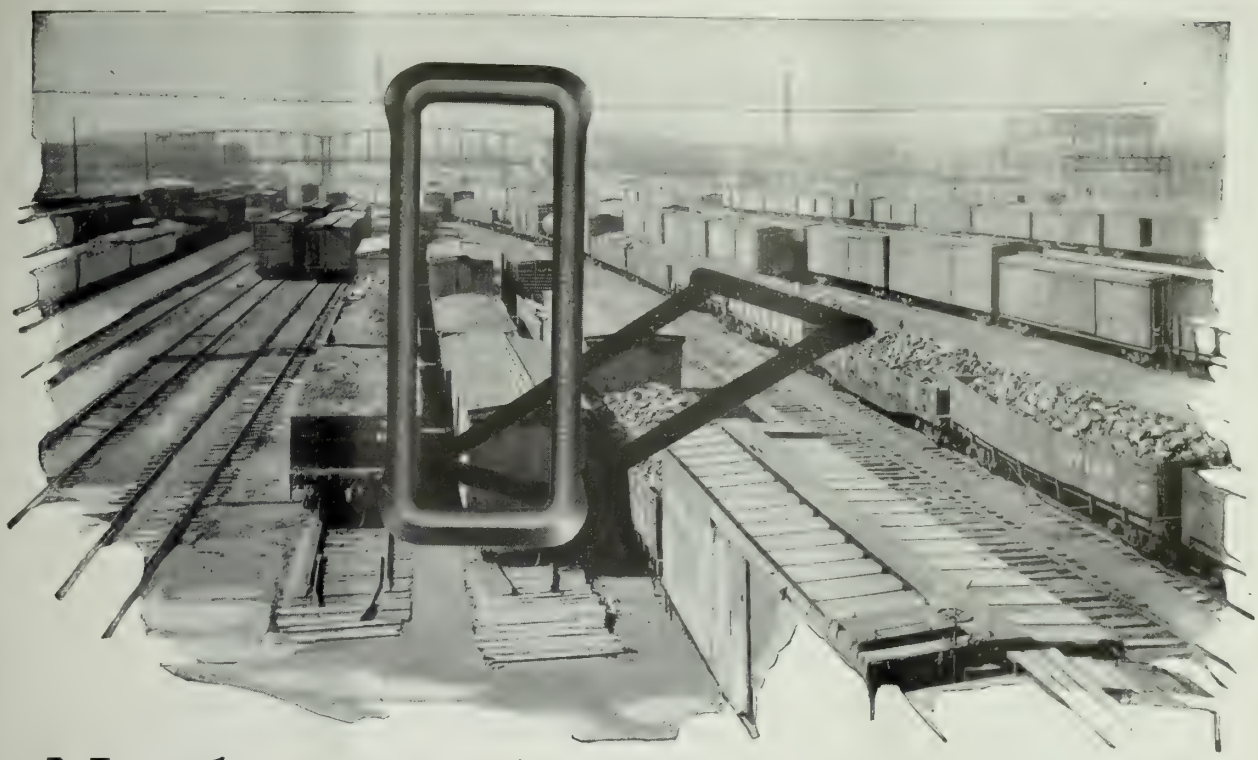
HYATT ROLLER BEARING COMPANY

Newark Detroit Chicago Pittsburgh Oakland

HYATT

ROLLER BEARINGS

PRODUCT OF GENERAL MOTORS



Nothing Else on the Car is More Important than the Brake Beam Hanger

WORKING, hidden and out of sight and almost forgotten, the safety of the train and many thousands of dollars depend upon the proper functioning of the brake beam hanger.

Schaefer Brake Beam Hangers are made and designed to meet this responsible duty.

Made of a single piece of wear resisting steel and free from welds, a stronger, more dependable hanger than the Schaefer Loop Brake Beam Hanger can't be had.

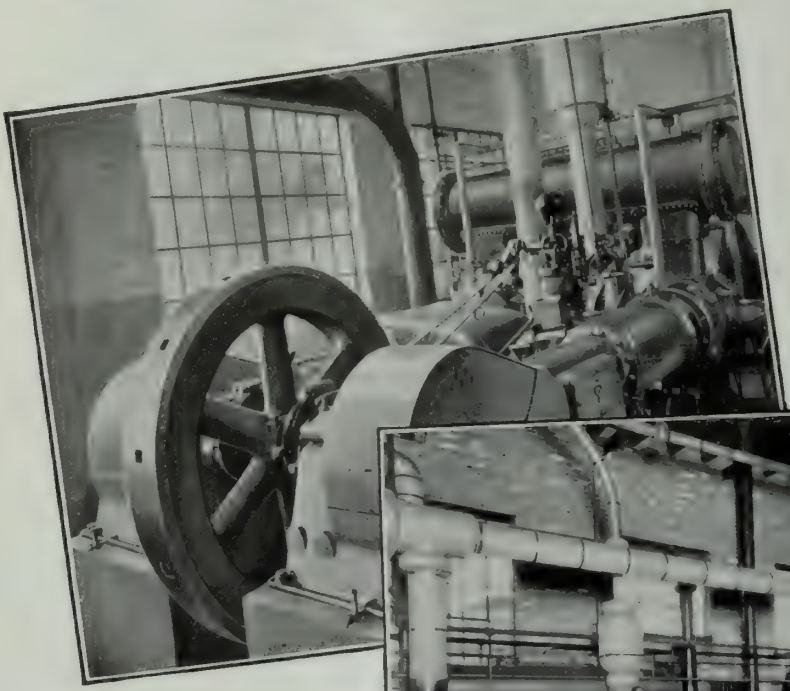
A detail in car construction yes—but a major factor in safety.

Because of the many thousands of cars in service, the magnitude of maintenance saving involved, and the increase in safety it assures; the Schaefer Loop Hanger justifies the investigation of any important operating and mechanical officer.

SCHAEFER EQUIPMENT COMPANY

General Offices: Koppers Bldg.
Pittsburgh, Pa.

CP COMPRESSORS Recently Installed By Three Large Railroads



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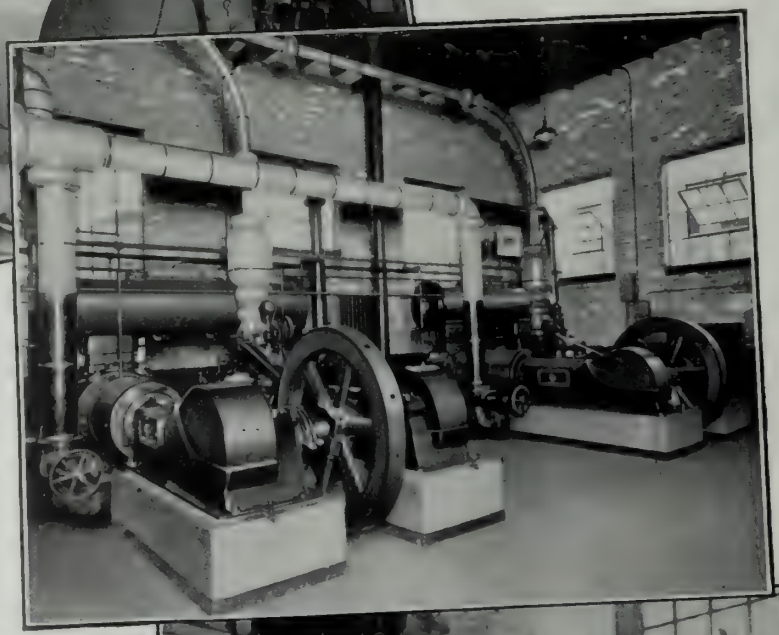

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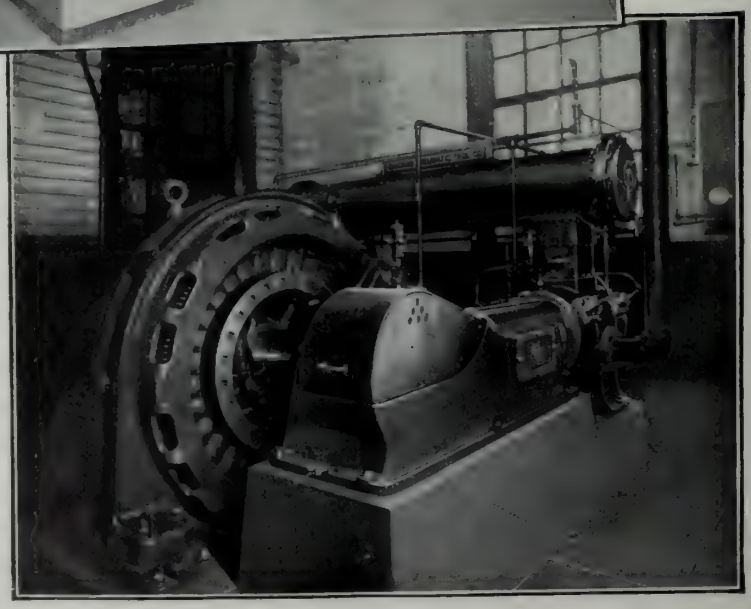

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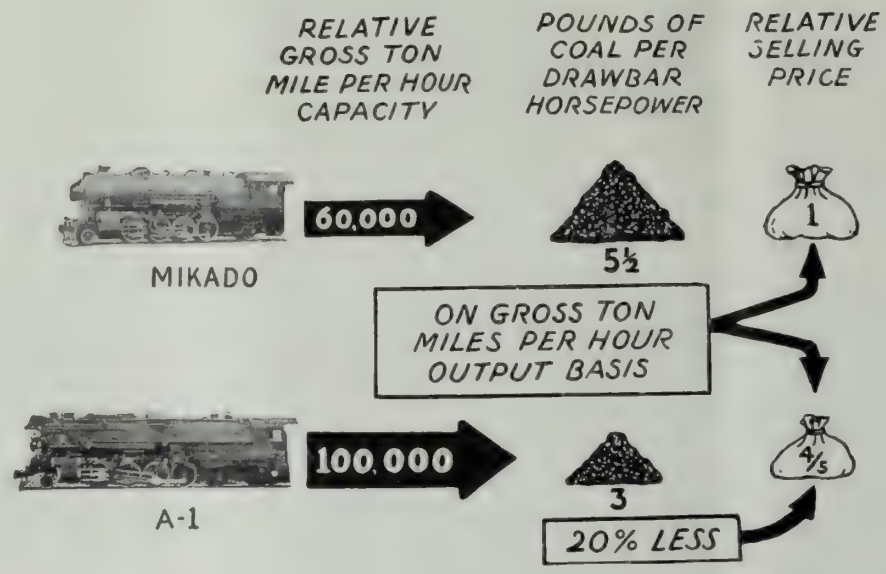

THE railroads are now buying "power". Mere ability to drag cars at slow speed no longer is the measure of the earning power of a locomotive unit. It must do more. It must pull cars at a rate of speed to produce the maximum tonnage movement over a certain division in a given time.

When the time element is introduced the requirement becomes a power requirement and on that basis the price should be considered.

Considered on the basis of "gross-ton-mile-per-hour" production, the Super-Power Steam Locomotive costs less than its predecessor.

LIMA LOCOMOTIVE WORKS

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LIMA, OHIO

South Shore Passenger Train at the Michigan City Station.

Building Up A Broken Down Electric

The Remarkable Recovery of the Chicago, South Shore & South Bend

By Charles H. Jones

General Manager

BACK IN 1907, there was born the project of building an interurban electric line from South Bend, Ind., to Chicago. At that time the territory lying between these cities was feeling its way out of sand and swale toward the beginnings of a great industrial district. The promoters of this Chicago, Lake Shore & South Bend Railway, as it was called, had faith in the territory which has since become famous as the Calumet district, the "Workshop of America." They took into account a growing industrial population, ever anxious to be within reach of Chicago. They saw coming the development of an iron and steel era, with its attendant heavy tonnages and widespread transportation demands. So they built a railroad, and a good one. When they started operation on July 1, 1908, the Lake Shore represented the finest that engineering skill could produce for ten million dollars.

Burning Old Wooden Cars.

The installation of 6600-volt single phase alternating current was the last word in power electrification.

The railway served the territory well, and prospered until the World War in 1914. That upheaval destroyed the stability of the company. Higher money rates, increased cost of labor and materials, parallel hard roads, competing motor truck lines and greater individual automobile travel contributed to its decline. These in turn brought about other bad conditions affecting the operation of the company until 1925, when, with a hopeless outlook confronting it, the management turned the property over to the courts. The value of the electric had depreciated to about $6,450,000.

In the Northern Indiana territory were utility operators supplying gas and electricity for private and industrial consumption who had faith in this workshop of America where steel is king, and foresaw the need of adequate transportation facilities of a type not then in existence. These operators had at their disposal a group of transportation engineers who had achieved success in the operation of a high-speed electric railway in Illinois. To these engineers they gave the elementary data on which to build their thesis, and the solving of the problem was started.

Traffic experts made a comprehensive survey for potential passenger

New Type Locomotive on the Chicago, South Shore & South Bend Railroad. The Engine Weighs 80 Tons.

and freight traffic. The study covered probable movements and volume of local and through haul passengers, routing of industrial freight shipments, anticipation of population and manufacturing increases, and probable schedules necessary. Then the engineers confronted the task of providing tools to do the work prescribed by the traffic survey. It was necessary to determine in advance and standardize on the type and character of roadbed, ties, rails, overhead, power signals, stations, cars, and other minor details. The engineers saw that the service would have to be of the highest caliber, and that the contributing factors to maintain that kind of service would have to be the best that engineering skill and ingenuity could devise, to face severe competition and overcome the ill-will inherited from the old company. Their findings were tabulated under the prescribed headings of the classification of accounts and covered a period of about five years, to be known as a Period of Reconstruction or Rehabilitation.

The combined report of the transportation engineers was approved, and the Lake Shore Electric was sold to the new operators in July, 1925, about five months after the bankruptcy proceedings were initiated. The management changed the name to the Chicago South Shore & South Bend Railroad, now better known as the South Shore Line, and began reconstruction at once.

It was not possible to suspend operation of trains, so the work progressed literally between trains. Temporary and immediate rehabilitation and improvement was made, to preclude interruption to service. This work was done with a view to providing the foundation for later rehabilitation work. As rapidly as possible replacements in their entirety have been made, or are being carried out in yearly steps.

The track and roadway were designed to meet the demands of a heavier and faster service. Steel of 100.25-pound section was used; new ties, tie plates, cinder sub-ballast to check sand, and stone ballast were installed. The curves were realigned and superelevated to meet the increase in speed requirements. Bridges and culverts were replaced. Railroad crossings were rebuilt or renewed entirely. A number of industrial sidings were installed and several others extended. Two high-speed sidings operated with spring switches were provided for two trains to pass at a high rate of speed. These items of rehabilitation alone have cost more than $2,300,000 to date.

Most of South Shore Line's rail relaying and construction work for the summer of 1929 is nearing completion. Four and one-half miles of hundred-pound rail have been laid from Wilhelm to Hillside, nine and one-half miles east of Michigan City. All this rail was tie plated, with treated ties going into replacements.

From Burns' Ditch to Meadowbrook, two and one-half miles between Michigan City and Gary, rail in the eastbound main was replaced by new 100-pound steel, including two No. 20 high-speed turnouts for fast passenger service. This track also was put to grade, a rise of about two feet.

Work is now being done on a 100-pound relay at Gary, Ind., between Virginia street and Broadway. A new cross-over also will go in here to match the larger rail.

At Smith, Ind., 12 miles east of Michigan City where for some time South Shore Line tracks have been subject to poor drainage, an extensive perforated pipe line is being put in to insure dry roadbed. Six hundred and fifty feet of 8-inch pipe will be laid in such a way as to catch surplus water and carry it off the right-of-way. The pipe will be placed in a three-foot ditch, slag-filled. At Whilhelm, ditching is being put in for 1000 feet on either side of the track, and at Furnessville 6000 feet of ditching is being dug.

Re-electrification, another major part of the program, was made dependent on the standards adopted by the Illinois Central Railroad on the suburban terminal. Operation at the same electrical potential would permit South Shore trains to operate without change of motive power to the heart of the Chicago shopping district, and assist in the success of the venture. Both companies standardize on 1500 volts direct current for propulsion. The rigid type of catenary overhead had decayed to a point where it was impossible to patch, and accordingly a new type of superflexible catenary trolley was run in without killing the 6600-volt A. C. line, or suspending operation. The new overhead consisted of an 0.81-inch copperweld-copper stranded messenger, a 300,000 CM stranded copper auxiliary messenger which in turn supported a 4/0 bronze slipper wire with hairpin hangers. The overhead is paralleled by suitable positive feeders tied in at 1000-foot intervals. Eight 1500-kilowatt substations, and one 750-kilowatt, 1500-volt direct current substation spaced approximately 8.65 miles apart, supply the propulsion current. Five are rotary-equipped, and four are mercury-arc operated. Six of the substations are full automatic supervisory controlled from a central dispatch board. The other three are manual. They have outdoor high tension equipment, the conversion units being housed in buildings of a pleasing type of architecture. About $1,500,000 has been expended on the re-electrification work.

It was decided to abandon the older type of semaphore signal and replace it with the superior two-color light type signal, making for better visibility and assuring a greater factor of safety. In excess of $180,000 has been appropriated for this work to date. Forty-nine motor cars and 15 trailers, mounted on Baldwin trucks, have been purchased; also two dining cars, and two parlor cars.

The choosing of the equipment was

done carefully with full realization that the passenger of today demands the best in comfort, safety and speed. Neatly painted and clean interiors, giving an air of refinement and comfort, deep plush bucket type seats, Pullman smokers, dual control of heat, good ventilation, storm windows, separate toilets for men and women, absence of advertising, protection against external noise, dining cars mounted on six-wheel trucks, and parlor-observation cars with up-to-the-minute appointments, satisfy the demand for comfort. Sturdy all-steel construction, diaphragms between cars, low voltage controls, dead-man operating controllers and underwriters' approvals, provide for the safety features. Free running speeds of 67 miles an hour, with accelerations averaging 1.5 miles an hour a second, maintain a fast schedule of 41.44 miles an hour for the whole time table of runs. New passenger equipment has cost in excess of $2,700,000.

Eight Baldwin - Westinghouse freight locomotives weighing 80 tons each and two Baldwin-Westinghouse switching locomotives weighing 55 tons each, have been purchased to handle the freight developed by an intensive solicitation campaign. The cost of freight equipment purchases has been about $550,000.

Freight and passenger stations were thoroughly overhauled and renovated. The exteriors and interiors were repainted with bright standard colors, and the interiors provided with battleship linoleum floors, attractive station furniture and ticket booths, and, where possible, light lunch and soft drink concessions were installed. Where the ground area around the station would permit, automobile parking areas were fenced off for the convenience of the traveling public. The cost of these improvements approximated $125,000.

Other minor improvements made were new shop equipment and tools, enlargement of the general offices and the running of additional telephone circuits. Over $170,000 was spent on these three items.

Having equipped the South Shore Line with the necessary tools to render adequate transportation service to the region, the management undertook an intensive campaign to sell the service to the public.

The schedules were made to fit the immediate demands of the patrons, and increased and shifted as fast as the new patronage required. They were laid out by the usual graphical method. A schedule with a train leaving the terminals on the hour or on the half hour assured an easy way to familiarize the traveling public with the headway of trains.

Two of These Fine Dining Cars Are in Service on the South Shore Railroad.

An advertising bureau was formed to portray to the public through newspapers, art posters and pamphlets the service rendered by the company. A traffic bureau manned by experts was instituted, and provided a means of making actual contact with prospective shippers and passengers. Through this bureau the business for a special merchandise dispatch and fast overnight freight service was developed. A tractor trailer system for l.c.l. shipments was worked out, resulting in saving the labor of unloading and reloading freight cars. The trailers are placed on specially built flat cars and carried through to destination. Interchange tracks with steam railroads have been installed and enlarged to handle the carload business which has been rerouted to and from eastern points. A number of industries with profitable side tracks have been induced to locate on the line by this bureau.

An outing and recreation bureau was established in the heart of the business district of Chicago. Maps, pamphlets and a great volume of information about the territory are available to the home settler, the casual traveler, the picnicker, or special parties. Once a week this bureau broadcasts a description of a historical point of interest or of a locality having potential, educational and recreational possibilities from one of the powerful Chicago broadcasting stations. The bureau issued about 100,000 pieces of literature and answered over 200,000 inquiries on the metropolitan area of Chicago, in the first six months of its existence.

The own-your-own-home bureau, operated in connection with the outing and recreation bureau, gives free information to the public on real estate, buildings and plans, and attempts to bring the prospective home owner through the maze of technical details leading up to the building and owning of a home.

A better business campaign among the employes of the South Shore Line was started to get the aid of every man or woman in getting new business. In 1927, over 4000 tips leading to new business were turned in. This activity was designed to ferret out the small shipper or individual traveler who could not be reached by the traffic bureau without an excessive expenditure of time and money.

The company has started a public speakers' bureau wherein employes are trained to speak in public on subjects of interest supplemented by stereopticon slides or motion pictures. The company, realizing the value of visual education, has filmed interesting points along the line, in addition to making pictures of its own activi-

ties. These services are constantly in demand by schools, clubs and study groups. The public speakers' bureau in cooperation with the better business campaign, has done excellent work by promoting industrial tours to manufacturing plants in the territory.

Some attention has been given to the improvement of employe morale. A monthly newspaper was started giving the personnel a nicely balanced news diet of personal topics, company activities and other interesting affairs. Group life and accident insurance have been floated at a small cost to the insured, the company paying the balance of the cost. A company section of the American Electric Railway Association has been formed, meeting once a month for an evening of pleasant educational and social interest. Foreman conferences have been started by the foremen themselves. They meet once a month by departments and discuss ways and means to greater efficiency. Much valuable information has been presented, and a great deal of good has been accomplished by permitting a foreman to develop the habit of thinking for himself.

A free medical service has been established where an employe may seek the advice and counsel of reputable doctors when ill. All employes submit themselves once a year to a medical survey. This has aided in forestalling disease, and assisted in corrective or preventive measures while the trouble was in the incipient stage. Employes have taken part in civic and community drives in the various towns. The fact that a number are members of local noonday service clubs and chambers of commerce, results in stimulation of good will.

The upshot of this great rehabilitation is that the public and the management itself have been agreeably surprised. Six months after 25 motor cars were placed in service, it was necessary to start work on 20 more cars of like design. One interchange track with a steam railroad had to be doubled in capacity almost before the last tie was tamped. A station which had been improved to take care of all future demands for five years was abandoned in 18 months in favor of a new station having a floor area about 3½ times that of the old. The delays were cut 64 per cent with the new operation as compared with the old, although the number of trains increased 33 per cent. Signal failures have declined from an average of 150 a month on the old type of signal to an average of six, with the color light type. Half-hourly headways put on between Gary and Chicago resulted in an increase of 45 per cent in travel in the first two months. Passenger revenue increased from $599,236 in 1925 to $1,772,918 for the year ended September 30, 1928, an increase of 195.9 per cent. Freight revenue increased in the same period from $189,263 to $1,129,856, an increase of 497 per cent. Total operating revenue in the same period increased from $858,265 to $2,971,488, an increase of 246.2 per cent.

An employes' stock sale, in which 15,000 shares of 6½ per cent preferred stock have been sold, has just been completed. Ninety per cent of the employes invested in their own company.

The management has felt that these results and many others have been achieved by making the service attractive, by informing the public of what we are doing and the ideals we have in mind, by making a sincere effort to please and cooperate with everyone, and by giving a dollar's worth of service for a dollar. We believe in the slogan, "He profits most who best serves."

Railway Accounting Course

A new course of study of special interest to railway clerks is the Railway Accounting Course, published by LaSalle Extension University of Chicago. This course covers the entire field of railway accounting and consists of eight parts as follows:

Elements of Accounting.
Principles of Railway Accounting.
Interpretation of the Interstate Commerce Commissions' Accounting Classifications.
Railway Accounting Procedure.
Railway Economics and Financial Development.
Railway Regulation.
Railway Organization.
Railway Statistical Methods.

This course is compiled with the assistance and cooperation of some of the leading railway accounting officers in the United States and Canada, and incorporates the latest and most advanced educational methods, including the well-known case and problem method of instruction.

Just As True About Steam Railways

The Georgia Power Co. publishes this advertisement semi-occasionally in every town or city it serves. The facts apply equally to trainmen on steam railways. There is a good suggestion here to advertising departments of railway companies:

The next time you are called to sit on a jury trying a damage suit growing out of a street car-auto collision, remember these things about this trainman of yours—

He is selected out of hundreds of applicants. He is not permitted to take charge of a car until thorough examinations have proved him physically and mentally fit, and not until after careful training has given him skill and experience. He is supervised, controlled, disciplined, responsible, sober.

Anyone—old or young, trained or untrained — may drive an auto. Auto drivers may, or may not, be equipped with the physical strength and nerve control necessary for the difficult task of guiding an automobile through traffic. They are supervised and controlled by no one, seldom disciplined for their errors, responsible often only to themselves, and not always sober.

The trainman cannot be careless, reckless, negligent, indifferent to the rights of others, and keep his job. The automobile driver may be all of these things, and continue driving his car through crowded streets for years.

The trainman's job itself, his success in his chosen life work, his social standing even, for his friends are mainly other trainmen and their wives, all depend upon his not having the accident.

And he, gentlemen of the jury, is on trial whenever you try a case in which his car is involved!

Balance up his qualifications, his temperament, his training, his reasons for being habitually careful, against those of the average automobile driver.

Which is entitled to the benefit of the doubt?

How Come the Standard Gauge?

The standard gauge of railways, 4 feet 8½ inches, was determined largely by chance. The width of the first tramways built in English coal districts was made to conform with the gauge of common roadwagons used on them, which happened to be about 4 feet 8½ inches. William Jessop is often credited with being the author of the standard gauge. About 1800 he designed a track between Loughborough and Nanpantan, the rails being 4 feet 8½ inches apart. The standard gauge was fixed by the English Parliament in 1846 and was applicable to all railways in England and Scotland except the Great Western. It was not until 1874 that the Great Western conformed to almost universal practice by altering its rails from the broad gauge of 6 feet to the standard gauge.

Thought is the property of those only who can entertain it.—*Emerson.*

The Hotel Sherman, Chicago, a Great Convention Center for Railroad Organizations.

Fuel Conservation, Better Handling of Trains

Traveling Engineers at Chicago

By C. E. Richard

THE SAVING of fuel, safety in operation, better utilization of power and reduction of freight claims by proper train handling—these more or less technical subjects combined with a program of entertainment that topped all records, made the 37th yearly meeting of the Traveling Engineers' Association, at the Hotel Sherman, Chicago, an event of importance in the railway field.

In addition to hearing how they could save their roads' money, increase the efficiency of train handling, and cut down the loss of life by strict adherence to safety rules, the engineers were treated to the most pretentious display of railway equipment ever assembled in a hotel, brought to the scene by the Railway Equipment Manufacturers' Association.

The conservation of fuel oil and coal for the use of future generations was one of the most important subjects on the program. J. W. McIlvaigh, chairman of the committee assigned to investigate the fuel question, told the engineers that extensive research should be made to improve equipment in order that the consumption of fuel oil and coal might be cut down and the efficiency of operating equipment raised. The committee made several specific recommendations designed to save fuel. Among them were:

The maintenance of standard sizes of smokestack nozzle stands, forbid-

ding the use of bushings or larger splits in nozzles where they are used to make the locomotive steam against defects which should be corrected.

Removal of fine coal by screening the fuel used in locomotives, since tests have shown that 8 to 15 per cent of the coal goes up the stack entirely or partly unburned.

Keeping locomotives in continuous service as long as possible before being turned into the roundhouse for repairs, thus avoiding the loss caused by firing up a dead engine.

An increase in the size of tenders, permitting longer runs and the acquisition of water at more suitable points.

The committee declared that since there are no particularly new or radical methods of conserving fuel to be pointed out it is necessary that further reduction in fuel consumption come from more intensive application of principles now in existence if the downward trend of fuel performance is to continue.

A committee headed by D. H. Varnell in a report on the proper handling of trains, freight and passenger, brought out the fact that every time the engineer applies the air to bring his train to a stop he can do so in such a manner as to wipe out completely the profits the road receives for hauling the cars behind his engine. The importance of proper train handling was demonstrated to the engineers by a survey of the claims for freight loss and damage, which showed that out of every five dollars paid by the railroads as damages one was due to rough handling of freight trains.

The freight loss and damage account for 1928, as reported by the American Railway Association, shows $56,557,243, as compared with $58,713,059 in 1927, a decrease of $2,155,816. The proportion of those losses caused by rough handling showed a small decrease in 1928, the report added, thus indicating that some improvement has been made along those lines.

The committee came to the defense of the engineer by insisting that although he is the man generally blamed and sometimes censured for damage resulting from rough handling, "there are others who might do their part." It urged that train schedules be made uniform over the entire division. The train dispatchers and towermen, the report added, might also be of some assistance.

L. K. Sillcox, assistant to the president of the New York Air Brake Co., read an extremely interesting and important paper on "The Trains of Tomorrow," a study of operating results on American railroads, especially since 1920. This paper appears elsewhere in this issue almost in its entirety.

Charles E. Hill, general safety agent of the New York Central Lines, told the 1,900 engineers that accident prevention is a business and of necessity must be conducted along business lines. "The traveling engineers," he said, "occupy an important part in the great campaigns that are being waged constantly by the railroads in accident prevention. The destiny of nearly 900 million passengers in the United States every year depends in a large measure on your vigilance and of those under your supervision. That this work is being done diligently is evidenced by the fact that only 16 passengers lost their lives through train accidents last year."

Mr. Hill declared that the progress recorded in accident prevention on American railroads justifies the statement that today they are more safely, more efficiently, and consequently more economically operated, than at any time in history.

"The hazards occasioned by the operation of railroads in this country have long since challenged the attention of men whose vision has been broad enough to visualize the importance of placing in effect a definite plan of procedure that has resulted in a gradual downward trend in accident frequency," Mr. Hill said. "To carry on accident prevention work successfully we must pursue a definite policy. We cannot succeed by merely telling someone not to get hurt. We must tell him how to do his work safely. To be able to do this constructively we must know how the work can be done safely. We must also know the cause of accidents, where they occur and how they occur, not failing to recognize the fact that accidents do not just happen but are caused. Our duty, therefore, is plain. The cause should be removed and the accidents prevented.

"As an indication of the results of organized safety on American railroads the number of employes killed on duty has been reduced from 3353 in 1913 to 1243 in 1928, a decrease of nearly 63 per cent. The number of employes injured has been reduced from 170,239 in 1923 to 69,692 in 1928, a decrease of 59 per cent. On a cumulative basis during that period many thousands of railroad employes have been saved from death and hundreds of thousands have been saved from injury. This record of achievement stands as a monument to organized safety and as positive and indisputable proof of what can be done where there is a concerted effort upon the part of officers and employes."

Employes have not been the only ones to benefit, Mr. Hill pointed out. The public, too, now enjoys a greater degree of safety than ever when riding on American railways. Passenger fatalities, he said, have been reduced from 350 in 1913 to 85 in 1928, a decrease of 76 per cent. Of these 85 only 16 were due to train accidents, the remainder being caused by happenings almost entirely beyond the control of the railroads.

Accidents at grade crossings have increased, he declared. Mr. Hill attributed this to the huge increase in the number of automobiles and the extensive mileage of improved highways. "It is of interest to know, however," he pointed out, "that while the number of automobiles has increased 300 per cent in the last ten years and the number of automobile fatalities of all kinds 160 per cent, the number of deaths at grade crossings has increased only 38 per cent."

Officers elected for ensuing year: President, R. Hammond, New Haven System, Providence, R. I. Vice Presidents: R. A. Phair, C. N. R., Montreal; H. B. Kelly, P. & L. E., McKees Rocks, Pa.; J. M. Nicholson, Santa Fe Ry., Topeka; A. T. Pfeiffer, N. Y. C., Syracuse; D. L. Forsythe, Frisco Ry., Springfield, Mo.; secretary, W. O. Thompson, Cleveland; treasurer, D. Meadows, Michigan Central, St. Thomas, Ont.

On the Cover

The picture reproduced on the cover, this month, is from a photograph by Gordon H. Coster, Baltimore. It won the first prize in the photograph exhibit at Baltimore during the summer. The picture is shown through the courtesy of the Baltimore & Ohio Railroad.

The aristocracy of today is not one of birth or wealth, but of those who do things for the welfare of their fellow men.—*Charles M. Schwab.*

Good and evil we know, in the field of this world grow up together almost inseparably.—*Milton.*

Writers, especially when they act in a body and with one direction, have a great influence on the public mind.—*Burke.*

What Kind of Trains for Tomorrow?

Modern Power, Speed, Safety, in Demand

By L. K. Sillcox

ONLY IN name and elementary principles is the railway of today identical with the railway of 1870. The adoption of the air brake, train control, modern signals and automatic couplers has made possible a vast increase in the capacity of motive power and cars. These with the advances in roadbed, structures, and a multitude of other improvements, have served to transform our transportation service.

The existing attitude toward accidents, adopted by the present railway administrations and the federal government, has created safe and properly disciplined service. Selfish standards have been cast aside for those motivated by public welfare, and tend toward the constant upgrade of progress.

There is a lesson to learn from a study of the operating results of Class 1 railroads in 1920 compared with 1928, if we try to picture an answer to the thought of what our "Trains of Tomorrow" shall be, even if we extend our gains only at the same relative rate that we have in the past nine years, as shown in the table accompanying this paper.

Part of a paper delivered by Mr. Sillcox before the yearly meeting of the Traveling Engineers at Chicago. Mr. Sillcox is Assistant to the President of the New York Air Brake Co.

With an increase in volume of traffic amounting to 21 per cent it was possible to secure 26.7 per cent greater train loading, with 18.3 per cent higher speed, and locomotives averaging an increase in tractive effort of only 19.5 per cent. These factors actually brought about a decrease in train miles of 5 per cent, in train hours of 23.9 per cent, in locomotive miles of 5.3 per cent and tons of fuel consumed of 11.8 per cent, with the unit rates of fuel affected accordingly.

The Trains of Tomorrow Won't Have Anything Much Finer Than This Observation Parlor Car on the Rock Island's Rocky Mountain Limited.

Of the numerous factors discussed by the railroad operating staffs in connection with the more efficient handling of train movement, it is found that the carrying capacity of any section of track is increased by greater uniformity in train speed, a feature often disregarded by those insisting upon passenger travel at an ever increasing average speed. Intensive passenger train movement is one of the causes also of the continuous effort being made to accelerate the movement of freight trains.

The increase in train speed, brought about in recent years, was accomplished not only by the use of modern locomotives, but by a reduction in the number of stops and delays, with but relatively little increase in running speed. Another outstanding feature appears from a study of the average time active locomotives are employed per day hauling trains, which in many cases is less than the basic day, showing that there may be a considerable loss resulting from improper spacing of terminals to allow full use of the motive power over a longer stretch of track when running even at present speeds.

There are many unnecessary irregularities in train speed which can still be largely eliminated through physical improvements to property. Where a railroad is able to secure money for improvements in grade and alignment, the returns generally have been good. Railroads operating west of Chicago, for instance, constructed originally to develop new territory, were built as economically as possible. As the country became populated and large communities grew up, resulting in increased business, it

		1920	1928	Per Cent In-crease	Per Cent De-crease
Total gross ton miles	(100,000)	913,851	1,105,506	21.0	....
" train miles	(1,000)	635,527	601,468	...	5.0
" " hours	(1,000)	61,429	46,741	...	23.9
" locomotive miles	(1,000)	718,605	680,413	...	5.3
" tons of fuel	(1,000)	89,925	79,311	...	11.8
Average train speed		10.9	12.9	18.3	....
" tons per trains		1,442	1,827	26.7	....
Gross ton miles per train hour		14,877	23,653	59.0	....
Gross ton miles per locomotive day		108,119	143,024	32.3	....
Average tractive effort of locomotives		41,443	49,553	19.5	....
Average hours on train per active locomotive day		7.27	6.04	...	16.9
Average pounds of fuel per train hour		2,928	3,393	15.0	....
Average pounds of fuel per train mile		283.8	236.6	...	16.3
Average pounds of fuel per locomotive day		21,470	20,513	...	4.4
Average pounds of fuel per locomotive mile		252.3	233.1	...	7.6
Average pounds of fuel per locomotive hour		2,967	3,396	14.4	....

became necessary and desirable, to improve railroad properties, especially in alignment and grades. In addition, it has been necessary to strengthen and improve the track on some of the original location in order to permit the use of heavier loads and higher speeds. On the other hand, railroads in the eastern section of the country are not often able to consider any change in line because of already serving very important communities along their main lines, and only through the consolidation of various railways can new or advantageous through routes be established in a practical manner. However, they can generally select terminal locations which will meet present day necessities adequately and provide for the most intensive utilization of their organization and plant.

It is not difficult for administrations to purchase heavier locomotives and higher capacity rolling stock because those items represent a tangible improvement which may be financed on the installment plan. Where strengthening of track, roadbed and bridges, the use of larger turntables, the extension of enginehouse stalls, and shop tracks, cannot be cared for immediately, it is possible, even if in many ways undesirable, to turn locomotives on wye tracks, as well as make temporary arrangements at enginehouse points and repair shops. Light bridges can be strengthened with false work, and thus enable them to continue in safe and serviceable condition for the time being, or until it is determined, from experience, what changes in practice are demanded because of the use of more modern locomotives. While it may be assumed, where track and roadbed are not strengthened, extra maintenance would be required, as a result of operating at higher average speeds and with heavier axle loads, still in many cases it is observed that with careful supervision no added burden has been encountered. One reason assigned for this is that the more powerful locomotives, while showing a higher average train speed with heavier tonnage per unit of movement, accomplished this result without having to resort to the practice of taking undue advantage of descending grades, in order to enable the carrying of trains over opposing rising grades. Again, modern motive power provides a reserve of power comfortably to meet emergencies and unfavorable weather conditions not common to older designs. On the whole, the use of heavier locomotives and modern rolling stock has proved so satisfactory, as a means of reducing the cost of operation, that this method of meeting present conditions is certain to continue, although there is some feeling that a limit will be reached in the economy thus obtained, especially where the locomotives, figuratively speaking, are found to have become larger than the trains, in comparison with the opposite position, which for so many years prevailed.

Where such limitations exist, it may be found that the facilities and rolling stock, in one particular or another, are not equal to the service which the most modern locomotives, in themselves, are capable of rendering, or an administration may consider it advisable to provide a larger

Here We Have a Multiple-Unit Train on the New York, Westchester & Boston Ry., Combining Safety, Speed and Cleanliness.

factor of reserve power than formerly was deemed essential. The establishing of the power which should be provided in the adoption of a design of locomotive is a standing problem to which no complete solution has ever been found, except in the case of motive power for special assignment, engaged for its whole term of useful service, in one given operation. The simplest plan, unquestionably, is to provide for as much power as the locomotive can ever employ usefully, and, on the whole, that seems to represent the best practical solution to the problem.

It is not strange, that in present circumstances, we look mainly at the element of speed, and compare the efficiency of operation of various railroads by the tons moved per freight-train-hour, because it focuses attention on the ever present need for using everything we have in a most effective way. The result of such a trend has been to compel the use of heavier roadway construction in conjunction with many other features such as the necessity of strengthening bridges, as well as providing suitable warning signals at highway crossings or grade separation where justified, with a view to avoiding grade crossing accidents and interruption and interference with train movement.

Hardly any department of railroading has made greater progress than in the realm of signalling. The objective at first was to obtain safety as the speed and weight of trains increased. Now it may be regarded as one of the most important means whereby economy and increased capacity may be obtained. Whereas originally safety was ensured by a time interval between trains, the signal system now aims at a space interval, and endeavors to keep trains moving.

The application of electricity to train haulage presents many problems, not the least being that of reducing energy demands to the lowest limits consistent with maintenance of the requisite service. It will be understood readily that between main line and suburban services there is a decided difference. For the former the motors are designed for an output corresponding to the hauling of a specified train weight at a given speed, over the most difficult section of line to be negotiated. On the other-hand, in the case of surburban trains, much of the energy is consumed during the period of initial acceleration, and this acceleration has a tremendous influence on the choice of motors and upon energy consumption. For long distance non-stop train movements, the maximum speed of a train does not greatly exceed the mean, and the accelerating period is not of much concern. It is quite otherwise with surburban service, for here the maximum economical acceleration and braking are sought in order to keep the mean speed as high as possible. In any case, the mean speed will be considerably less than the maximum.

And This Is a Passenger Train of Yesteryear, or Part of It, on the Early-Day Baltimore & Ohio Railroad. Still, Some Minnesota Radicals Say Our Railroads Have Not Improved.

Striking changes have taken place in the field of transportation, during the past nine years, and if the same trend is carried forward, it may be predicted, from a knowledge of the facts, that the "Trains of Tomorrow" will operate with still greater success as regards features of average speed attained, average weight per train carried, net revenue tonnage, reliability in operation and overall economy by reason of detailed improvements now in progress or under review, affecting signalling, right of way, and terminal location and construction, as well as equipment design. The railway plant will become increasingly better adapted to utilize the potential value of improvements already made, as regards time in active service of locomotives and corresponding tonnage moved. With a decrease in short-haul business, it is realized more clearly all the time how the expense for movement by railway does not grow in proportion to the length of the haul, but in fact tends rather to decrease per unit of distance. The terminal costs form smaller percentages of the total as the distances increase, and, hence, through business will be intensively concentrated upon, and will represent a higher proportion of the total tonnage offered. In the case of electrification of steam operated lines, there will be no escape from its extension in cases where the service or the local conditions justify its use. Significant in this matter, is the emphasis it has placed on the need for constantly improving steam locomotives to meet competition from other available classes of motive power, which may be substituted therefor, and the fact that greater reserve of capacity is now being considered a prime essential to good service.

When we are looking at railway developments from a national point of view, we must consider the effect which the growing competition of other agencies, such as the private automobile, the motor bus, the motor truck, the airplane and improved waterways have had in diminishing passenger and freight revenues. From all that may be predicted, this trend will continue into the future. In brief, a marked development will unquestionably be made, in the years which follow, as regards methods of handling through freight and passenger movements and coordinating their dispatch in such a way as to lend to the greatest use to be made of the facilities for safety, comfortably and economically handling all of the business offered. Methods for dispatching trains with a view to eliminating intermediate stops, caused from train interference, can be expected to improve as constant study is given this matter. Such a result will make possible a further

The Golden Arrow Express, in Point of Excellence, Is One of Tomorrow's Trains Running Today Between Paris and Calais. The Golden Arrow Is Declared to be One of the World's Finest Trains.

increase in tonnage in relation to the ability of the locomotive to render revenue earning service and will also increase terminal-to-terminal speed, in conjunction with the hourly rate of work performed without any increase over maximum speeds now experienced.

These decisions are not decisive, but they add weight to the main argument that may be presented to the effect that there is real competition between the various lines only as regards the class of service and the character of facilities they offer the public. While a liberal allowance of capital is not a complete answer, it goes a very long way to provide the necessary elements to furnish success, provided the human element and a high degree of willing cooperation, which is beyond price, have been effected through good management. The implication of what is said has a wider significance than its contribution to the internal development of a great industry. It is fundamental to our progress as a great nation, and to meet the demands of the future will require a continuance of the highest order of integrity, courage and vision which have brought us through the years to the present day.

This Must Be The Limit

The largest land plane ever built, primarily designed for whisking sleeping passengers across the night skies at 150 miles an hour, was launched officially Sept. 13 at Hasbrouck Heights, N. J. The plane, known as the F-32, has accommodations for 30 passengers and a crew of pilot, copilot, radio operator and steward. It has 30 seats for passengers and two for the pilots, while the radio operator and steward have space under the pilots' seats in the control cockpit.

The passenger cabin, divided into four sections, is finished in mahogany and light fabric. Each section has four glass windows. The equipment is so arranged that at night the cabin can be converted into a sleeping compartment for 16 persons.

The ship is designed for a maximum speed in sea level country of 150 miles an hour and a cruising speed of 120 miles an hour. It has dual wheel control adjustable, and brakes acting independently on each wheel so that it will be readily steered on the ground. When empty the plane weighs 13,800 pounds and can carry a useful load of 3700 pounds. Its cruising radius with a daytime load is 480 miles and with nightime load 850 miles.

With thirteen persons aboard, the giant plane, which has a wing spread of 99 feet and is nearly 70 feet long, took off after a run along Fokker Field of less than 20 seconds. It climbed steeply, banked and swung in wide circles under low clouds. First the rear of the four engines were idled and then the front without loss of altitude. The speed was pushed up to 150 miles an hour, lowered to less than 100, the plane dipped and swooped and banked to demonstrate its stability in all positions, and then it dropped gently back to the muddy field.

The passengers sit four abreast with a wide aisle running down the middle. The cabin is so high that even tall passengers cannot touch the ceiling when standing. There is a kitchen and two washrooms.

White Lights Ahead

By John A. Lambert, *Engineer Bayfield, Wis.*

Oft when I feel my engine swerve,
As o'er strange rails I fare,
I strain my eyes around the curve,
For what awaits us there.

When swift and free she carries me
Through yards unknown, at night;
I look along the line to see
That all the lamps are white.

Again the open fields we roam
And, when the night is fair,
I gaze into the starry dome
And wonder what is there.

Swift toward life's terminal I trend;
The run seems short tonight;
God only knows what's at the end,
I hope the lamps are white!

Railroad Ties and Timbers in the Yards of T. J. Moss & Co., At East St. Louis, Very Different Items Now Than 30 Years Ago.

Roadmasters Now Have Serious Jobs

Fine Exhibit at Chicago

By W. F. Fisher

THE VALUE of yearly meetings of railroad organizations, especially in connection with industrial manufacturers' exhibits, was never more convincingly demonstrated than in the recent gathering of the Roadmasters' and Maintenance of Way Association at the Hotel Stevens, Chicago. Educationally, the opportunity could scarcely have been surpassed, a fact of which every member and a very large number of persons not connected with railroads in any way took full advantage.

The exceptionally well-arranged program bearing the names of men thoroughly competent to speak upon the subjects assigned them was, of course, appreciated by every delegate. If it chanced, however, that any of these railroaders missed a paper or an address it was perfectly safe to wager that the absent delegates would be found in the hallway adjacent to the room in which the meeting was in session. The paper or the address, important as it certainly was, could be read afterward, but the exhibit of track materials, equipment and appliances presented a rare chance for personal inspection and study for which, as many declared, roadmasters and other officials had been waiting.

It was the 47th yearly meeting of the association in whose membership are included practically all the men to whom are intrusted duties of maintenance and construction of which the public, to which those duties are so important, knows little or nothing. Railroads, as most of us know, are made and maintained by many men, but of all participating in the work, the late A. H. Smith, president of the New York Central, once declared, it was doubtful whether any had duties more important to public safety than those performed day and night by the men in charge of track maintenance, from the section hand to the roadmaster.

In a gathering of such men, therefore, it is not at all surprising to find serious faces and thoughtful, intelligent and interesting conversation. Inventive brains and the resulting products of manufacturers whom we have come to classify generally as railway supply men, have brought about an astonishing and welcome change in the work of trackmen, particularly in the United States, the proof of which was to be seen in the displays arranged in the Hotel Stevens.

"We are still young enough to value these improvements," said one of the delegates. "We who have pumped a hand car to our work, tamped ties with the handle of a shovel, and disarranged our insides hauling rails in the old-fashioned way, are in position to put a proper value on modern tools and machinery. The next generation will scarcely feel as we do. It won't have lived what we lived in the early days of railroading. No wonder we spend a lot of time among the exhibits."

The first session was given unusual interest by the addresses of W. F.

EDISON and his STORAGE BATTERY

One of a Series of Historical Sketches Presenting the More Significant of Mr. Edison's Series of Experiments from 1898 to 1908 in His Search for a Dependable, Economical Storage Battery

(Reprints of Previous Issues Will be Furnished on Request)

Edison Discovers a Completely Reversible Action

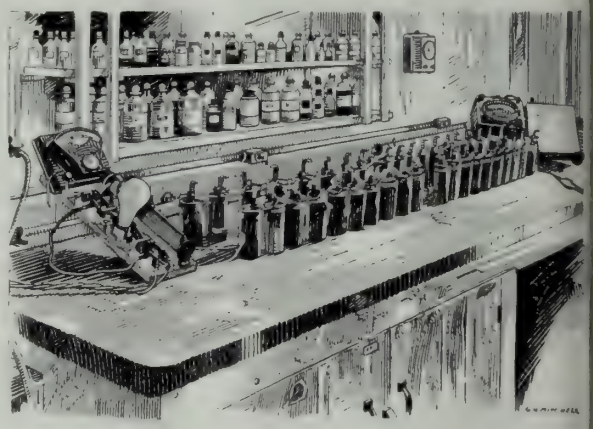
IN his development of his battery, Mr. Edison built more than 20,000 experimental batteries in which he observed the behavior of every conceivable material that would not be prohibitive in price.

He charged and discharged them repeatedly. Some gave no current at all. Some gave a momentary current that rapidly dropped to nothing. Some could be charged and discharged but a few times and then became worthless.

From the first, Mr. Edison realized that since a battery functions by chemical action it was necessary to discover a *completely reversible* one. One in which the active materials, after a discharge, would return, unimpaired, to their original condition, after a normal charge.

Only such a reaction would assure a battery of sustained capacity over a long service life.

Mr. Edison used to remind his assistants that a mechanical device usually gives audible or visible warning when it fails to function correctly, but that in a battery undesired reaction causing short life or loss of capacity can take place unseen and unheard unless the action of charge and discharge is reversible completely.



Battery cells on test in the laboratory of the Edison Storage Battery Company similar to those used by Mr. Edison in his discovery of the reversible reaction between iron and nickel.

Such a reaction he finally found in the oxidation and reduction of iron and nickel, and thus made possible a long-lived, sustained-capacity battery. One that in railway car lighting maintains a known, specified capacity an average of 16 years, and is today so guaranteed.

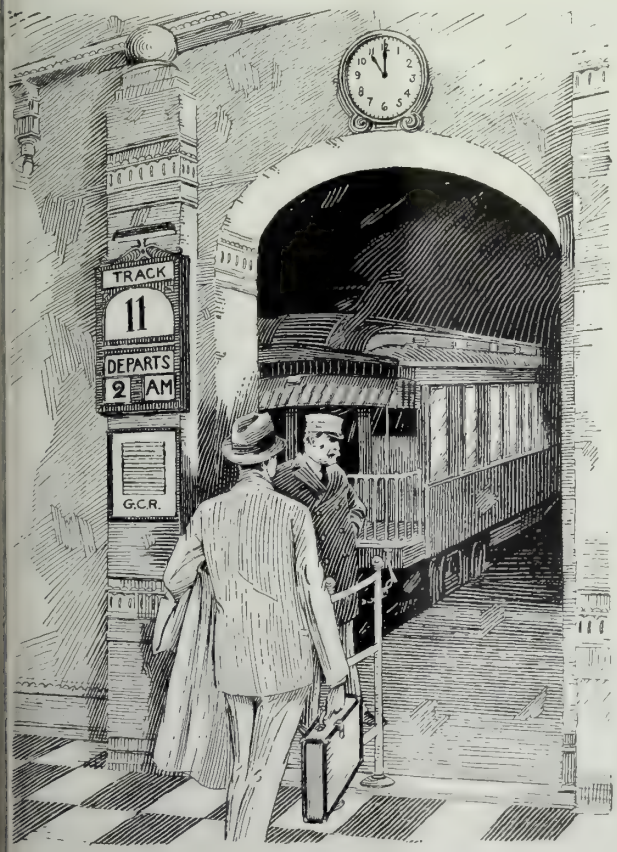
Edison *Steel Alkaline* Batteries give Economy ple Unit Control, Signall

EDISON STORAGE BATTERY COMPANY, ORANG

The Practical Effect of Reversibility Upon Life and Cost

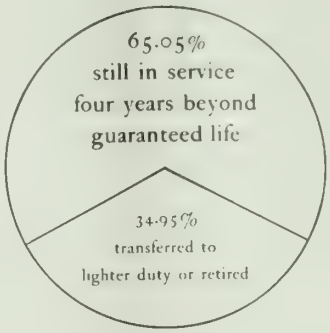
IT is now 21 years since the first of Mr. Edison's *steel-alkaline* batteries went on the market, 18 since the first were applied to car lighting.

Ample time to determine beyond question whether they actually give long, sustained-capacity life.



"Ready for occupancy at 10 P. M."

One of the many occasions when good lighting must rely *entirely* upon the dependability of the battery in the car.



The history of 4002 Edison Cells sold in 1913 and 1914 to two railroads.

A 1928 audit of 4002 Edison Cells sold during 1913 and 1914 to two important railroads disclosed that 65.05 per cent were still in service, four and five years beyond the ten-year life guaranteed at the time of sale.

When such records are considered along with the numerous improvements made during subsequent years, it is expected that Edison Batteries of current manufacture will maintain their specified capacity for at least the sixteen years now guaranteed.

Here is one of the fundamental reasons why Edison Batteries give economy in railway car lighting.

And the same characteristics that give long life, reduce the cost of maintenance to the minimum.

They also assure dependable lighting, in keeping with the quality and dependability of modern railway passenger service.

pendability in Railway Car Lighting, Multi-
d Motive Power Services.

TRADE MARK
Thomas A. Edison

J. , , , BRANCHES IN PRINCIPAL CITIES

Careful Piling of Ties Is Necessary for Their Proper Seasoning, Described by R. S. Belcher.

Thiehoff, general manager of the Burlington, and Herbert R. Clarke, president of the association, general inspector of permanent way for the same road. Mr. Thiehoff spoke of leadership and the qualifications essential to success. Men differ much, he said, and perhaps it is just as well that this is so. If all were alike there would be no need of teachers or supervisors. But all men, he said, need to school themselves into self-control.

"If we are given to stubbornness," said Mr. Thiehoff, "if we are unkind, resentful, complaining, we ought to try first and constantly to overcome such faults. If we are ill-tempered, consider the effect it has on our own disposition and peace of mind and then multiply this by the number of employes we supervise or associate with and I am sure we will be so alarmed at the result that we will immediately make correction and by so doing, prepare ourselves better to understand when and how discipline should be administered.

"There are, and perhaps always will be, individual employes, who think discipline is personal punishment, administered by supervisory officers because of personal dislike or favoritism, so, our duty is to understand well the rules and requirements of the service; to give consideration to the experience, development and capability of the employe and his disposition to render service, and when we apply the corrective measures by administering discipline, to explain to the employe involved his violation of rules so he may understand the need for a change in his methods or practices and his disposition to serve."

President Clarke reported that 145 additions to the membership roll brought the total to 874. This indicated satisfactory conditions, but constant effort should be made, he said, toward gaining members from a larger number of roads. As in most organizations members here and there lose interest as time goes on so that new names must be sought throughout the year to take their places. Work is to be done, too, he said, in enlisting greater cooperation in perfecting the labors of committees, and in inducing all to take part in floor discussions.

When tracks and roadmasters are mentioned the mind turns naturally to ties and timbers, and these are much different things nowdays than thirty years ago. R. S. Belcher described some of the most important features pertaining to his work as manager of the treating plants of the Atchison, Topeka & Santa Fe Railway, giving particular attention to the production, and subsequent care necessary in handling ties. M. M. Backus, assistant engineer, maintenance of way for the Illinois Central Railroad, spoke about the economic use of labor saving equipment, and R. H. Ford, assistant chief engineer of the Rock Island Lines, provided the encouraging and hopeful aspect of the meeting in his paper on "The New Day in Maintenance." H. S. Clarke, engineer, maintenance of way for the Delaware & Hudson Co., told of the work done by his company in stabilizing employment throughout the year.

G. H. Warfel, assistant to the general manager of the Union Pacific, presented the report of the committee on the correction of unsafe methods in track work, a notable feature of which was a suggestion advocating surprise tests in connection with the operating of track motor cars. The report said:

Collisions result from failure to maintain a proper lookout, failure to flag or use torpedoes and fusees where the view is restricted, or failure to control the speed properly from the braking power of the moving car. Collisions of trains are due largely to the same causes. Surprise tests to ascertain whether train and engine men are complying literally with the requirements of rules, have proved to be the most effective means of preventing train collisions, and likewise the most logical for preventing collisions between track cars and trains or other cars.

Roadmasters and all other supervisors in the maintenance of way department should be required to make a stated minimum number of surprise tests and checks on track car operation monthly.

L. A. Downs, president of the Illinois Central, was the principal speaker at the yearly dinner given by the Track Supply Association to the Roadmasters' Association at which 600 members and guests were entertained.

Officers elected for the ensuing year were: E. E. Crowley, roadmaster, D. & H. Co., Oneonta, N. Y., president; Elmer T. Howson, western editor, Railway Age, Chicago, first vice president; C. W. Baldridge, assistant engineer, Santa Fe Ry., second vice president; T. F. Donahue, general supervisor, B. & O., Pittsburgh, re-elected secretary, and James Sweeney, supervisor, C. & E. I., Danville, treasurer. Chicago was selected as the meeting place in 1930.

More than 700,000 freight cars on British railways are privately owned.

The General Foremen Confer

A program of addresses and papers invaluable to every foreman, general or otherwise, was presented interestingly in the 23rd yearly meeting of the International Railway General Foremen's Association at Chicago, Sept. 17 to 20, at the Hotel Sherman. Among these were The Progress of Transportation, by A. R. Ayers, general manager of the New York, Chicago & St. Louis; L. C. Thompson, manager of stores, Canadian National Railways, Montreal, and Isaiah Hale, safety superintendent, Santa Fe System.

Mr. Ayres described the increased average miles daily of freight cars

recorded since 1918, the reduction in fuel consumption, improvement in locomotive and equipment design, the demand for increased speed, improved track conditions, and finally took up the periodic shopping of freight cars as a most important topic in his address.

"I should like to get across one message to car men," said the speaker. "I have thought sometimes that a car foreman was his own worst enemy in turning out cars in such condition that it is only a question of a short time until someone will have to take them in on the repair track again.

"I am very willing to agree that the design of cars in the past probably made such methods the only ones possible to employ to keep the cars moving at all. But times have changed, cars as built today have the trucks, underframes, draft gears and couplers substantially designed so that with proper maintenance they will run a long time with very few repairs.

"It is common practice to shop locomotives on a mileage basis and to shop passenger cars on a basis of regularly assigned number of months service between shoppings. In the past this has not been practical with freight cars but the time has come when it is practical and, in my opinion, it is desirable and even necessary.

"Several roads, of which the system with which I am connected is one, have adopted the policy of giving freight cars general repairs with a definite expectation of a certain number of years service before another general repair becomes necessary. This length of service varies from six to ten years according to the class of repairs.

"That such a period of service between shoppings is entirely feasible was definitely proved to our satisfaction by the performance of a lot of 1,000 box cars built in 1916 and which, for ten years and in some cases even longer, required nothing more than running repairs except, of course, in a few isolated instances.

"Similar to the practice of other roads we assign certain classes of cars to certain shops for general repairs. Our mechanical department people readily agreed that if these cars were thoroughly overhauled there was no reason why they should not give nearly as much service as a new car before they would again need a similar overhauling.

"For about a year and a half we have proceeded on this basis and have every reason to believe that the expected results will be obtained. Record is made of the cost of labor and material for every car receiving such a general repair, and the car is stenciled to show the date and place of general repair. Instructions are in effect that such cars shall not again receive general repairs prior to the expiration of their scheduled term of service without first taking up with the master car builder.

Loading Steel Ties at the Delaware & Hudson's Fabricating Plant. A Good Use for Old Rails.

"This practice, of course, requires the renewal of a small percentage of material that might give some further service. In most cases, however, such material can be used for running repairs, and we feel that better condition of the car over a period of years and greater freedom from repair track movements will more than compensate for the slight additional cost of making the complete general repair.

"Continuous long runs of passenger cars amounting to 2,000 miles or more have been common for many years and it is very seldom that a passenger car needs any repairs of consequence or is required to be taken out of a train in the course of such a run. Long runs of locomotives are now becoming common.

"Having in mind the continually increasing demand for faster and more reliable freight service it would be difficult to over-estimate the benefit from an operating standpoint that would result if freight cars were maintained so that they would make long runs at high speed with the same reliability and minimum amount of inspection and repairs at terminals as passenger cars. From an engineering and maintenance standpoint I can see no good reason why this condition cannot be brought about with resulting better service and at even less cost than at present, and I should like to leave that thought with you for your very serious consideration."

H. B. Sunderman, Hocking Valley, Columbus, O., was elected president; A. H. Keyes, B. & O., Pittsburgh, first vice president; second vice president, C. Y. Thomas, Kansas City Southern, Pittsburg, Kans.; third vice president, Austin T. Streeper, New York, Chicago & St. Louis, Conneaut, Ohio; fourth vice president, William J. McCloskey, Illinois Central, Centralia, Ill. John H. Armstrong, Santa Fe Ry., Topeka, chairman of the executive committee.

Tool Foremen Elect

Sixty-one manufacturing companies were represented in the displays arranged for the American Tool Foremen's 17th yearly meeting at Chicago, Sept. 11-13, an educational feature sufficiently important to justify attending the sessions even if no other attractions were present.

But there were others. The principal bright spots, perhaps, were ad-

Making a Ballasted Roadbed on the Hudson & Maine. Unloading the Crushed Rock From That Company's New 70-Ton Hopper Cars.

dresses by C. M. House, superintendent of motive power, Chicago & Alton, and E. B. Hall, general superintendent of motive power and machinery, C. & N. W. Mr. House spoke of the importance of having good tools for the shops, but, more urgently still, the duty of instructing the men in their proper use. Without such education money spent for tools is just about wasted.

Mr. Hall described the competition against which railroads are operated, and the very large share good workmen, good tools and properly maintained equipment may have in helping toward increased efficiency, and consequent savings.

A. A. Ferguson, tool supervisor, Missouri Pacific Ry., St. Louis, was elected president of the association; first vice president, H. L. Taylor, supervisor of shop machinery and tools, Baltimore & Ohio, Baltimore; second vice president, J. T. Jones, tool foreman, New York Central, Collinwood, Ohio; third vice president, D. L. Grady, tool foreman, Atlantic Coast Line, Rocky Mountain, N. C.; secretary-treasurer, G. G. Macina, the Milwaukee, Chicago. Executive committee: C. A. Shaffer, general supervisor, shop machinery and tools, Illinois Central, Chicago; J. E. Carroll, supervisor of tools, Chesapeake & Ohio, Huntington, W. Va.; W. J. Davidson, tool foreman, Atlantic Coast Line, Waycross, Ga.; L. C. Bowes, general piece work supervisor, Rock Island Lines, Chicago.

The First Cement Tank Ship

The world's first cement tank ship has been launched in Denmark at Aalborg. The ship is designed to carry loose cement in specially designed tanks, from which discharging will proceed through the medium of suction pumps. Both loading and discharging operations will be extremely rapid. The seven tanks with which the vessel will be fitted will hold a total of 1,400 tons of cement. The propelling machinery will consist of two Fairbanks-Morse Diesel motors developing a total of 800 i. h. p. and designed to give the vessel a speed of 11 knots.

Remember the Railroads

The shortage of feed on farms in the drought-affected areas of Saskatchewan is to be alleviated by free transportation for baled hay, straw and threshed oats shipped into these areas. An agreement was effected between the railway companies and the provincial government of Saskatchewan that rail rates on this necessary feed for the farms would be reduced 50 per cent, and that the provincial government would meet these reduced charges. It is understood that a similar arrangement was successfully carried out in 1924 when there was also a feed shortage in many parts of the province.

Artistic Cars for Austria

Pullman cars that will appeal to esthetic as well as practical tastes soon will carry passengers on the Austrian federal railway system.

The road has decided to apply the principles of modern art to the new Pullman coaches which will supersede the old fashioned carriages of the International Express trains.

Architect Josef Hoffmann, professor of the Austrian Academy of Fine Arts, has designed the new model of the Pullman car, which, it is declared, in point of decorative art and comfort, will surpass any car of that description.

Plans for improvement also provide for the gradual electrification of the system. When the plan is carried out two years hence, Austria will boast one of the most efficient railway systems in Europe.

Motor Service in Britain

There are today 3,312 regular motor-coach services operating in England and Wales, linking up more than 18,000 towns and villages. In addition, there are 296 regular express motor coach services between distant points, and a multitude of seasonal services. The number of motor coach companies in England and Wales exceeds 6,000.

The railway companies have bought or amalgamated with 36 companies in England, Scotland and Wales, and negotiations are being undertaken to purchase other companies. According to the official figures, the increase in private vehicles has been 10 per cent in the last five years, while the commercial percentage has been quadrupled.

Old Friend Railroad

Forced down by engine trouble, L. R. Keith, Hays, Kas., brought his airplane down in a suburban street at Denver, Sept. 23. He was uninjured. The plane was slightly damaged. He had taken off from Curtiss Field a few minutes before, an route to his home in Kansas. Keith resumed his trip by train.

Electric Lines Meet Next Year in San Francisco

By Hal Weber

Obviously, This View of Atlantic City Was Taken While the Convention was Holding a Night Session Attended by Everyone.

It would be difficult to say just how many thousands of members and guests of the American Electric Railway Association attended the 48th yearly meeting, September 30 to October 4, at Atlantic City. When this report was being prepared the registration had not been counted; some estimated the attendance at 5,000, but others, actuated, no doubt, by the enthusiasm engendered by the alert chamber of commerce, put the total at twice that number. While, ordinarily, this would not be an extremely important item it assumes that aspect in connection with a gathering of men representing an industry which, many persons believe, is having the struggle of all time for its existence.

Whatever the number, however, it certainly was an intensely interested body of men assembled from every part of the United States, Canada, England, Japan, and other countries, and no time was wasted by any of them. As an indication of how many delegates probably were in the meetings, it was reported that the night before the meetings began more than 3,000 persons had registered.

Paul Shoup, president of the Southern Pacific Company, one of the foremost railroad executives in the country, was elected president. Mr. Shoup was for years president of the Pacific Electric Railway. It was announced as a pleasant bit of news in connection with Mr. Shoup's election, that next year's convention of the association would be held in San Francisco, the first time it has ever visited the Far West. On this point President Barnes said, "Our eyes turn toward the future. California and the glorious West beckon to us and we have answered the call. Beyond the mountains on the Pacific Coast there are great transportation properties which present many interesting problems peculiar to the conditions under which they operate. By the time our next convention is called to order in the great city by the Golden Gate, we may expect again to have many new achievements to record in the industry's march of progress."

One arrangement of particular interest to other men and associations concerned with transportation matters is the luncheon conference of the A. E. R. A. In nearly all conventions members are expected to attend the performance in the main hall where the program may or may not include subjects of interest. The electric railway men have divided themselves into conferences or round tables, each discussing a separate subject. There were 19 of these conferences this year, and all were attended regularly by the earnest and discriminating members eager to hear and discuss the things which, doubtless, they had been thinking about for a year or more. In last year's conferences more than 1,500 members participated. In all these meetings a sponsor with considerable understanding of the subject for discussion, presides. The procedure followed in each session necessitates the delegates arriving at 1 o'clock promptly. The discussion proper begins exactly at 1:30 and lasts for one hour, the sponsor closing the meeting at 2:30 o'clock, regardless of the state of argumentation.

In addition to the luncheon conferences every day during the convention there were carefully arranged meetings of four affiliated organizations in separate places. These were the Accountants' Association, the Claims Association, the Engineering

Association, and the Transportation and Traffic Association. These groups function under the direction of the American Association, but make intensive studies of their particular fields. During the past year, each association has been busy working in the interests of the entire American Association.

The difference between a convention and a conference, judging by the A.E.R.A. activities this year, lies in the fact that in the former the entire time usually is given to crowding in just as many speeches as possible by men whom everyone wishes to hear, while in the conference the hour or more is taken up with informal talks about the insides of electric railways. Or, as one of the delegates with a paper in his pocket said, the average convention is an occasion upon which business men who are not speakers read speeches prepared for them by secretaries who are not writers.

Naturally, there were many speeches, papers, addresses and "well chosen remarks" in the Atlantic City convention. The president of the association, James P. Barnes, presided in the first session, and in his interesting way described some of the problems of electric railways. For years, he said, presiding officers had said the industry had reached its turning point.

"It is a peculiarity of our business," said Mr. Barnes, "that it is forever at a turning point. Perhaps this is because we are part of a civilization moving at a tempo which the world has never known before.

"Our communities are changing in shape, in size and in habit. To continue to serve their needs we must continually turn to new developments and methods, and this continual turning must be accomplished without vertigo. We must read deep below the surface and stress the fundamentals, in order that our development may be actual and not a mere change of raiment.

"The past year has been unique in devotion to this ideal. We have entered upon a sincere search for the elements to support our future growth. We cannot rear a structure without a solid foundation, nor can we fit our business into the life of the communities we serve unless we base it on fundamentals. The industry must snap out of its complacency, think straight and act boldly."

Mr. Barnes reviewed the work of various committees. "The committee on taxation," said he, "deals with a topic which, like the poor, is always with us. There was a time when electric railways acted directly and expressly as tax-gatherers, certain communities levying a tax of 1 cent or a fraction on each street car fare. Although taxation today follows other forms, no less directly is the industry acting as a gatherer for various divisions of the government, of a class tax from its patrons. Each year the electric railways collect and pay to various branches of the government some $62,000,000. This direct tax is 6.8 per cent of the total operating revenues.

THE NEW OFFICERS

President, Paul Shoup, president, Southern Pacific Co.

First vice president, J. H. Hanna, president, Capital Traction Company, Washington.

Second vice president, G. A. Richardson, vice president, Chicago Surface Lines.

Third vice president, J. H. Alexander, president, Cleveland Railway.

Fourth vice president, W. A. Draper, president, Cincinnati Street Railway.

Members of executive committee, operating companies, three-year terms:

Frank R. Phillips, vice president, Philadelphia Company, Pittsburgh, Pa.

Edward Dana, general manager, Boston Elevated Railway.

Members of executive committee, manufacturer companies, three-year terms:

C. E. Morgan, president, Cincinnati Car Corporation.

C. C. Castle, vice president, A. C. F. Motors Company.

Stafford K. Colby, manager sales promotion and development, Aluminum Company of America.

Members of executive committee, operating members, to fill unexpired terms. Two-year term:

F. W. Doolittle, vice president, North American Company.

One-year term:

W. E. Wood, chairman of the board, Virginia Electric & Power Company.

Thomas Conway, Jr., president, Cincinnati, Hamilton & Dayton Railway.

"The committee on depreciation has devoted its attention to the newly promulgated depreciation rules of the Interstate Commerce Commission for steam railroads. Although many member companies would not be affected directly by these rules, practically all railways would be affected if the terms were adopted in substance.

"The committee on industrial relations has done much in formulating the principles which guide our management, and in pointing out proper policies in matters of wages, working conditions, continued employment and individual and group relations with employes. Management and employes alike are learning that our business is a partnership in which neither can deal unfairly with the rights or necessities of the other."

W. E. Willkie, general counsel of the Northern Ohio Power & Light Company, Akron, Ohio, has been counsel for a street and interurban railway in the commonwealth, where he said, following President Barnes, public utilities own less than 1 per cent of the personal property and pay approximately 35 per cent of all personal property taxes assessed; where the scintilla rule of evidence gives to juries in personal injury cases the opportunity to use their imaginations unrestrained; where politicians thrive; where Tom Johnson and his 3-cent fare once held sway, and where every franchise ordinance is subject to a referendum vote of the people.

In his brief experience Mr. Willkie said he had appeared before courts of all degrees and kinds, councilmanic and legislative committees, boards and commissions, and committees of leading and representative citizens, all engaged in the delightful art of regulating by law, order and suggestion, the every act of the client which he represented. His subject was "At the Public's Service," but he felt he had been in a position to learn something about the subject, "At the Service of the City, County, State and National Government."

Full recognition of the difficulties besetting the electric railway industry, and his personal convictions for their solution, were presented by Charles Gordon, new managing director of the A.E.R.A. Mr. Gordon paid tribute to his predecessor, Lucius S. Storrs, who is now chairman of the board of the United Railways & Electric Company, Baltimore.

In the various sessions of the main convention or those of the advisory council addresses were delivered by men whose names are known everywhere, but particularly in business, commercial, industrial or transportation circles. Among these were Robert P. Lamont, secretary of commerce; Lord Ashfield of the London Underground Railways; Ernest Reuter, chairman of the board of the Berlin Transportation Co., and others.

Lord Ashfield said the problems

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Editorial Comment

One Hundred Years Ago

A PRIZE of £500 was awarded George Stephenson 100 years ago this month for the sensational feat of the Rocket, his locomotive, which made 29 miles an hour on the Liverpool & Manchester Railway. Doubtless the anniversary will be observed suitably in England, but over here there will be no public demonstration. Few of the present generation ever heard of his name or that of his little engine.

Locomotives are commonplace things in the public mind, accepted casually just as most of the comforts and conveniences of transportation are viewed. Then, too, the historic Rocket would stand little chance for the money today, even in a bicyle race. Nevertheless, the Rocket with its 29 miles an hour, was actually the forerunner of the human demand for speed and much of it.

Railroad men will do well to read the story of George Stephenson to their children. It may be found in any public library—usually down in the vaults, covered with dust—but more comfortably it is to be read in the encyclopedias. His name and his achievements are brought a little closer to us in remembering that he lived until 1848. When his work has been described the reader should turn to the volume containing the story of the locomotive. This, too, should be familiar to every railroad family. It is too long to set down here. We are in a great hurry. Space is costly. Go to the library.

Word From Old and Valued Friends

Automobiles and trucks, railroads and airplanes have not reduced the number of horses and mules in the nation. The Horse Association of America with headquarters at Chicago, says there are still one billion 400 million dollars worth of these animals in the United States, and that the number of saddle horses has increased in the last few years. There are actually 14,920,000 horses and 5,477,000 mules. Automotive vehicles and other forms of modern transportation have merely lifted most of the hard work off the faithful shoulders of man's best friend.

How to Save Money

If you earn—or get—$5,000 a year and have to cross the continent the money-saving way to go is rail-air. Obviously, if you are in the $5,000 class you must save money. Any way these are the conclusions of W. T. Studebaker, a district passenger agent at Chicago for the Western Air Express.

"Take a trip from Chicago to Los Angeles," says this high-power salesman. "By rail it requires about 62 hours. Taking either the Alton or the Santa Fe, with which roads the W. A. E., has working agreements for the exchange of passengers, to Kansas City and plane from there to Los Angeles, requires only 24 hours. This is a clear saving of 38 hours."

Studebaker then says a $5,000 a year man is worth $2 an hour, or a least he gets it, and saving 38 hours means saving $76. Certainly this is more than the man could save if he stayed at home. The all-rail fare to the coast, including Pullman, is $103.47; and this doesn't include meals in the diner or tips, taxi fares. The air-rail journey costs $196, a difference of $92.53; you get your meals in the air free, pay no tips, and get a free taxi ride to your hotel. So, says the air salesman, summing up, you save the $76 in time, which is money, and the cost of meals and tips and taxi. Returning you save it all over again, and if you keep on traveling air-rail there is no reason why, eventually, you shouldn't have a fairly large bank roll which, naturally, you never would have if you stayed at home.

Automatic Connectors to be Tested by A. R. A.

On September 19 a conference was held in Washington between the representatives of the bureau of safety of the Interstate Commerce Commission, the American Railway Association and the brotherhoods to discuss the complaint filed last February by the brotherhoods asking the I.C.C. to compel the railways to install automatic train line connectors.

As a result of this conference an agreement was reached that the A.R.A. will appropriate $100,000 to carry out tests of automatic train line connectors. The tests will consist first of laboratory tests, and such devices as show merit will then be submitted to road tests.

The laboratory tests will be conducted at Purdue University as soon as the test racks and other necessary equipment can be installed, and will be conducted under the direction of H. A. Johnson, director of research of the American Railway Association, who has had charge of the air brake tests.

The investigation will be carried on by the A.R.A. in cooperation with the bureau of safety of the I.C.C. and the brotherhoods who were the original complainants.

Are You Getting Ready for 1933?

One hundred years ago Chicago and railway transportation were in their infancy. Rails of wood, iron or steel had not yet reached the trading center of the Middle West that was destined to become the world's greatest center of railway transportation. The growth of Chicago, therefore, is coincident with the growth of the railroad industry, and an important factor in transportation development. It is only fitting that transportation should be one of the principal exhibits at the Chicago World's Fair Centennial Celebration now being planned for 1933, an international celebration of Chicago's one hundredth birthday.

Among those privileged to visit the Columbian Exposition in 1893, who can forget the beautiful golden entrance to the Transportation building? It, alone, was worth traveling miles to see. Inside the enormous building there was one of the most interesting exhibits of the entire fair. It comprised every style of vehicle from ox cart to the largest type of locomotive of that day. It

does not require much stretch of imagination to visualize an exhibition of everything that was shown then, plus the tremendous achievements that have since marked the steps of progress in transportation. That the display of such accomplishments, at the Chicago World's Fair in 1933 will attract universal attention goes without saying. Never in the history of the industry will there have been anything to compare with it.

About one year ago the Baltimore & Ohio held an exhibition with the progress of transportation as its motif. About seven million visitors viewed its wonders. It will be the purpose of the Chicago World's Fair in 1933 to duplicate, to some extent, that exposition, but on a much larger and more comprehensive scale. All railroads will be asked to participate in a collective and coordinated exhibit that shall be truly representative of the entire industry as a unit without thought of competition or commercialism. Already leaders in the railroad industry are beginning to make their plans for such an exposition. That it will rival, and possibly surpass, the many exhibits of other great industries, is believed certain.

It Was Certain to Come

The department of commerce may feel perfectly safe about one thing any way: The Interstate Commerce Commission will not oppose the plan to let the regulation of aviation remain right where it is today, such as it is. The Interstate Commerce Commission has all the work it cares to handle, and a great deal too much for efficiency's sake. There have been many departmental rows in Washington but this situation is not likely to add to the list.

Senator Bratton of New Mexico, who wants the recent tragic accident of the T. A. T., passenger plane investigated by the senate, as if it were not bad enough, also wishes the proposed investigators to make a report on "the feasibility or advisability of placing those engaged in such commerce under supervision of the Interstate Commerce Commission, and if so, the kind and character of legislation needed to accomplish that result."

Senator Bingham of Connecticut wants the department of commerce to regulate aviation. One more thing is certain: Some department of government will do it.

Railroads and National Solidarity

Ralph Budd, president of the Great Northern Railway, told the members of the National Association of Railroad and Utilities Commissioners in their meeting in Glacier National Park, that it costs about twice as much to maintain and operate a mile of mountain railway as it does for a mile on the prairie. The cost of construction, likewise, is doubly as great or more. Grading is largely in solid rock and consists of very deep cuts and tunnels and very high embankments with large and costly bridges; snow sheds are not infrequent. Mountain torrents require not only large drainage openings, but heavily riprapped roadbed. The much greater curvature involves the use of more ballast and ties and heavier rail, while the mountain grades, of course, necessitate more motive power and result in excessive wear and tear on equipment.

Mr. Budd's address, containing, as it did, the solid, technical facts to be expected from a trained engineer of established reputation, with the unusual opportunity given the commissioners to see and study the situation at first hand, must have been convincing. It was a fine introduction, too, for this concluding paragraph of common sense:

"It remains for the railways," said Mr. Budd, "with the cooperation of your members and that of the Interstate Commerce Commission to continue the policy of providing the most modern appliances for safety and efficiency, and to place them in the hands of the officers and employes who have developed an especial aptitude in these localities and circumstances. Nothing is more important now than to promote and facilitate the easiest possible communication between the remote parts of our country, not only for the advancement of the trade and commerce, but for the further advancement of our national solidarity."

American Railroad Men in China

Fred McCormack, a widely known traveler and writer, in a sidewalk chat with an old train dispatcher, one night in September, told with pride of the fine things done for the Chinese Eastern Railroad in Manchuria by American railroad men in the international commission under Col. John G. Stevens and later under Col. B. O. Johnson, now assistant to the operating vice president of the Northern Pacific Railway.

Among other interesting things mentioned by Mr. McCormack was the fact that it was these railroaders who introduced over there the American system of train dispatching. What, he wondered, would be the effect of the disturbance now going on in Manchuria? Certain it is, at all events, that the Nationalist government of China, made up very largely of young Chinamen educated in America and Europe, are studying closely everything done on American railroads. The Chinese, Mr. McCormack said, would have to build up foreign credit, which to the present they have not been able to do, before modern methods can be adopted completely.

A Chinese railroad official recently traveling in this country was astounded to learn that the old system of dispatching is fast giving way to train direction by signal alone, and this, to the visitor, was little less than marvelous.

The development of "remote control" has been one of the important developments in signal operations on the railroads of the United States and Canada, according to a report submitted at the recent semi-annual convention of the signal section of the American Railway Association.

"As a result of many of the installations," the report said, "the greater capacity provided by this efficient method of operation has postponed the necessity for building and maintaining many miles of additional track, thus effecting substantial savings both in construction and maintenance costs."

As a result of the installations on various railroads, the report estimated that the trains whose movements are directed entirely by signals are making nearly 32,000,000 train-miles a year, nearly one and one-half times the total freight train mileage in the New England Region. On about 10 per cent of the total train mileage so operated, signals are instantaneously transmitted to the engineer and fireman by means of mechanisms that automatically record each signal in the locomotive cab and directly in front of each man.

"In the past two years," according to the report, "a greatly improved system of train operation by signal indication has been developed. The new system simplifies the work of the train dispatcher and enables him to increase substantially the output of transportation, especially on single track lines."

Where Are We Headed?

About the time we think the country is moving rapidly toward the long-sought millenium along comes the Bureau of Labor with a report that changes the entire picture. It used to be a commonplace saying that competition never existed between ignorance and skilled labor, but the latest reports indicate that skilled labor has been falling into the discard.

According to the labor department's figures and facts, machines are taking the place of trained hands and eyes. A writer in the North American Review, last winter, said the race had become thing-minded, machine-minded, motor-minded. Time-saving appears to have become an object of primary importance throughout the social scale. A great industrial leader declares that if industry tried to adopt many of the products of inventors and scientists the entire structure would be wrecked, millions of dollars—he said billions—would be lost, and the streets would be filled with idle mobs. Engineering brains, this man declared, are working faster than the world can work, faster than it can move.

According to the Bureau of Labor statistics, the average number of hours worked a week for all unionized trades has decreased 10 per cent during the past 20 years, despite an increase of 275 per cent in wages. Another indicator of increasing leisure is the decline in the proportion of the working population. This is from 39 per cent to 37 per cent between 1920 and 1925.

One effect of increased leisure has been that more of young America's time is devoted to study. Between 1920 and 1924, the number of students enrolled in educational institutions increased by over a million.

Americans indulge in luxury more and more, yet it cannot be urged that the people as a whole are spending more than they earn. Savings deposits have increased from $11,000,000,000 to $31,000,000,000 during the last ten years, and the number of depositors has nearly quadrupled, proving that the habit of saving is more widespread.

The First Air Traffic Conference

The old order changeth. Conventions of railroad men, supply men, the automotive industry, are common in transportation circles. Now we have the first annual meeting of air traffic officials. Executives of 29 major air transport lines met September 16 at Kansas City, and remained in session several days.

Interesting views were expressed. One general traffic manager declared it his belief that express business soon will exceed the value of passenger revnue, and this condition, he said, would be encouraged by the building of larger and better airplanes. The air mail service, he believed, has reached its peak, although reports show it to be increasing constantly. Night flying for passengers, he said, will be the next development, and already it is popular.

What did these air officials talk about? The development of airports, ticket sales accounting, facilities for handling passengers, methods of developing and handling air mail and express, publicity and advertising, radio communication, insurance of planes and passengers, and uniform baggage weights less exploitation of "hero flying," safety, uniform airport rules. It was a colorful, novel, and extremely business-like gathering.

The Car Supply

It was Henry Ford who discovered that 22 freight cars would carry 600 automobiles unassembled, while 100 freight cars were needed to carry as many complete vehicles. So he transformed himself into a parts producer, and set up assembly plants at strategic points about the country—except for the needs of the Detroit area. It cost $2,100 to make 600 complete automobiles out of parts stored at an assembly plant. The cost of hiring 78 freight cars was saved, and that many cars were made available for other shippers. Every time Ford ships 600 unassembled cars he adds 78 cars to the supply, helps himself and others too.

The Family Man's Duty

Every railroad man ought to be insured. Such protection not only shows a man's proper considerateness for those depending upon him, but it proves his physical fitness to bear such responsibilities. If a man's employers do not provide group insurance he should, nevertheless, scrape together enough money to pay the premiums on enough insurance to care for those he helped to bring into the world. Parenthood teaches self-denial. Adequate insurance is the father's first obligation.

Airplane Production Grows

Production of commercial aircraft during the first six months of 1929 showed a substantial increase over 1928, according to the Aeronautical Chamber of Commerce of America. Of 3,381 planes produced during the first half of 1929, 2,854 were designed for commercial use, the remainder being built for military purposes. Commercial planes constructed were valued at $17,032,747. The total of military planes produced was slightly lower than in 1928, the report stated.

The production of airplane motors from January 1 to June 1, showed an increase of 78 per cent over the entire output in 1928, with an increase of only 20 per cent in value, however. This low percentage of value increase indicates an active market for the medium priced motor.

President Hoover has been a busy and exceedingly energetic executive since he assumed office. He may make mistakes; the best of men do, but at least he does things. You may question the wisdom of his views on waterway improvements, but such an attitude was to be expected in an engineer. The people will have to pay the bill. Spurgeon, the great English preacher, once said of Gladstone, "We believe in no man's infallibility, but it is restful to be assured of one man's integrity."

The world is blessed most, said James Oliver, by men who do things, and not by those who merely talk about them.

The Southern War Picture Play, "The General," With Buster Keaton As the Solemn-Faced Hero, Was Filmed on the Pacific Coast Narrow Gauge.

A Narrow Gauge's 60th Anniversary

By Ralph P. Dillon

When Captain John Harford hitched his team of horses to a couple of carts and pulled them over a mile and a half of narrow gauge track up in San Luis Obispo County, California, in 1869, he probably had little idea that his crude contraption would live for more than half a century and become a real steam railway, with engines and cabooses an' everything. But it did, and this year the Pacific Coast Railway Co. is celebrating its 60th anniversary, with many more years of service in view.

The lack of transportation was a great obstacle to development in California in the days following the Civil War. The Spanish Dons were satisfied with their clumsy "caretas" pulled by oxen, since it was their firm belief that it was no mark of a gentleman to be in a hurry. The only road of any consequence was El Camino Real, the Mission trail of the Padres. Avila Bay, in San Luis Obispo County, was a port of call for the coastwise trade, since it was the only haven south of the Golden Gate for many miles, but it wasn't much of a harbor because there was no breakwater, and congress, clear across the continent in Washington, couldn't see any particular reason for spending a lot of money to build one.

Captain Harford owned about 3,800 acres around the bay, and to aid his inland neighbors he built the tiny narrow gauge line to the harbor. When, in the early seventies, congress appropriated $300,000 to build the breakwater, he also built the first important wharf. Harford's success attracted outside capital, and in 1873 Abe Blochman & Co. signed papers of incorporation for the railway, naming it the San Luis Obispo Railway Co. After the Civil War, many veterans from both sides came to central California and their settling had the effect of a boom. Land values increased, but the lack of transportation remained an obstacle. Grains and hides that sailed 'round the Horn or up the coast to San Francisco, could not be hauled at a profit in wagons.

The railway was reorganized in 1875, taking the name of the San Luis Obispo & Santa Maria Railway. Christopher Nelson became first president of the road, with Captain Harford, John O'Farrell and Nathan Goldtree of San Francisco as directors. Thirty-six miles of track were laid southward because of the growing importance of the Santa Maria Valley, and it was planned to continue the line to the Santa Ynez Valley, but in 1882 the appropriations were exhausted and the work was abandoned, never to be resumed.

Today there is more than 100 miles of track, with extensions to several towns off the main line. E. W. Ward of Seattle is president, with M. B. Moore of Seattle and E. C. Clark of Los Angeles as vice presidents. W. T. Masengill, a former chief dispatcher for the Southern Pacific, is superintendent with headquarters at San Luis Obispo. A number of important men have held this latter position, including Colonel Clark, who is also executive vice president of the Union Oil Co. of California, and J. M. Sims, who is president of the Outer Harbor Dock & Wharf Co. of Los Angeles.

The Pacific Coast Railway, which took its present name just 50 years ago, is one of the few narrow gauge lines on the coast acting as a regular carrier. Well over one million pounds of beans were moved over its tracks last year. The rolling stock of the road consists of 275 freight cars, ten passenger cars, ten work cars, an electric combination car, two electric and seven steam locomotives. Maintenance and operation employs 158 men exclusive of officials. A number of motion picture companies have used the line for locations in their films because of its narrow gauge. Buster Keaton used it in his great comedy, "The General," and Dick Barthelmess shot scenes on it not many months ago.

In addition to the railway, the company operates a string of 18 grain and bean warehouses, and a coal and lumber company with yards in nine towns.

The Pacific Coast Railway is the outgrowth of a young territory's need for transportation, and ranchers who hear the whistle of its engines at night think of it as a symbol of progress. It is a California railway, built for and by Californians.

Success is full of promise till men get it; then it is a last year's nest, from which the bird has flown.—*Beecher.*

There's a Bus Market Over in India

Several Hundred Lines Operating There

By King Hamilton Grayson

Consulting Research Engineer

Bus travel literally had its beginning in India during 1906, from which have grown several hundred lines operating over 2000 buses of various types, and covering an average of 25,000 miles a day. Most of these lines are feeders for India's network of railroads, and have become very popular wherever in operation.

Buses, as a general term in India, means any kind of a motor-driven vehicle which is authorized to carry passengers, freight or mails; and many of the buses are re-built second hand American touring cars or light trucks. Until the roads are vastly improved, the light type of car and truck will continue a necessity. The special bus type of chassis used in America will not be possible for introduction on a large scale for about five years except in some of the larger cities. Even then, the American manufacturer will have to be governed by the conditions imposed by very narrow streets, short turns, and carrying capacities.

The tram and railway strikes in India first forced the introduction of buses, or they probably would not be in use in many districts today. The shortage of materials for tramway use during the World War also had its effect, especially in Bombay, where the first bus line was established to carry workers between the Churchgate Street Station of the Bombay, Baroda & Central Railroad and the Custom house in Ballard Estate. For this service three light American buses of 10-passenger capacity, were installed. From this beginning other buses have been introduced in the Bandra suburban district, and have proved a great benefit as a feeder for the railroad and toward encouraging many of the better class natives to construct suburban homes.

Buses began to receive their first real serious consideration in the Calcutta district in 1924 when 20 were installed for use in the city. By the end of that year bus transportation had become so popular that 63 were licensed to do business. A conflict between the police and the license department over the type of chassis to be used, and the operators' fear that they would have many losses through changes, caused the development to be greatly retarded. The public, however, is very kindly disposed toward the buses which are used almost entirely by the natives. An American or European invariably uses a taxi.

Ancient Transportation Must Be Used in Northern Burmah Because of Poor Highways. Another Five Years Will Change This.

A motor bus operator in Calcutta may be licensed to run his buses over several routes but he is not bound to maintain a scheduled service. Consequently, he may use one route in the morning and one in the afternoon, leaving the morning route without service. However, he dares not run over any routes not covered by his license. The Calcutta traction company began to use buses in 1921, and by the end of 1924 had eight English heavy buses in operation. These became so popular that 24 additional buses were installed during 1925, and more with every passing year. However, the company has changed from the former heavy type to a light-weight chassis capable of carrying 14 passengers on the 1-ton; 22 passengers on the 1.5-ton; 30 passengers on the 2-ton; and 35 passengers on the 2.5-ton truck. These chasses are all imported without bodies as these can be built so much cheaper in the Calcutta shops. Double deckers are impracticable for Calcutta on account of the heat or the monsoons without a roof over the upper deck and are unsafe for use in the city. Consequently, the bus most generally in use is the light weight type with side doors and of the capacities noted. For rural use the operators are permitted to use buses with a rear entrance but never in the city. The traction company operates four buses between Calcutta and Jaynagar which have proved very profitable and popular.

American bus and truck manufacturers would find it possible to increase their sales to a great extent in the Calcutta Presidency by developing the "hire-purchase" plan which many of the natives can meet easily. This consists of one-third cash payment and the remainder in 12 equal monthly installments. It is the most popular plan for bus purchase in op-

eration, and an American company created under Indian laws could hold title to the property until payment was made in full. Through such a plan a good market could be developed for both new and second-hand cars, trucks and buses.

Despite the opposition of public authorities, buses were introduced in Madras in 1921 and by the end of 1925 more than 100 were in operation. This total had reached nearly 200 by the end of 1928, and with some opposition still existing against their use. There are now two permanent lines operating from Georgetown, the business center of Madras near the harbor, to Mylapore, five miles away, and to Triplicane, four miles distant.

During the four months of the racing season bus transportation is exceedingly heavy between the city and the race track ten miles from the center of town. Most of the buses in this service are reconstructed second-hand American touring cars with roughly-made bodies, or one-ton trucks. The competition among the Indian operators is very keen. It is this spirit which offers possibilities for the American manufacturer to create sales of new chasses or even of complete buses if he will cooperate with other manufacturers of merchandise so that the bus space can be utilized for cargo to save the cost of freight on the bodies.

In Karachi the trams are so satisfactory that buses are not generally needed except to carry surplus holiday crowds to the seaside. This city is isolated by the sea on one side and the desert on the other so that suburban or rural bus service is extremely limited. Until the national highways are improved not much encouragement will be offered the bus manufacturer from the Karachi district.

On the other hand, buses are growing very popular in the Province of Kashmir for the transportation of mails, freight, and some passengers. The majority, however, use the touring car type of buses which carry eight or ten persons. The route of 196 miles from Rawalpindi to Seinagar is being utilized more and more by foreigners who are in the country for visiting or business purposes and whose demands have made it necessary to improve both roads and equipment. The remainder of the roads in this province are generally unfit for buses, and only light cars can operate over them.

The Grand Trunk Railroad traverses a large percentage of the Punjab region from Delhi to Binla, and has encouraged the opening of many short bus lines as feeders. This has resulted in fairly good and regular service between Pathankote and Dalhousie, a distance of 52 miles; between Dharamsala and Baijnath, 83 miles; and between Lahore and Amritsar, 35 miles. However, also in this area the touring car is a forced substitute for the bus on account of the roads and grades.

Bullock Carts Hauling Cement and Other Road Materials Until Improved Highways Make the Use of Trucks Possible.

A similar condition exists in the Rajputana district where the roads are generally poor except from Hasirabad to Deoli, a distance of 58 miles. Here also, the buses are used as feeders to the railroad. There is also a bus line between Abu Road and Mount Abu which is heavily patronized during the hot weather when the populace seeks the cooler climes 17 miles up the mountainside. Agra and Oudh offer exceptionally good opportunities for the American bus manufacturer. Seventy-five per cent of the population in this district are agriculturalists and of a more prosperous class. As a result, their roads are mostly macadam and generally in a fair condition. Light weight buses and touring cars receive the preference, but most of these generally are overloaded when they depart from or arrive at destinations.

Eight important bus lines are in operation in the district of Bihar and Orissa, a mining, industrial and agricultural section. The demand is steadily increasing for more and larger buses to care for the needs of the miners and industrial workers. There is a very good opportunity for motor bus development at Jamahedpur, which is becoming a large industrial center; and at Dhambad, the center of the coal industry.

Bengal does not offer much to encourage the bus manufacturer on account of the generally poor roads or the impassability of good roads when the many rivers start on their annual rampage. Calcutta is the only bright spot in this section at present, but the prospects are that the roads will be very greatly improved within the next two to three years because of the popularity of motor travel.

Despite the fact that the waterways of Assam are the common means for transportation, motor cars and buses have grown with steady popularity until the roads are now receiving considerable attention. There is one important bus line in operation between Pandu and Shillong, a distance of 68 miles, and with others gradually extending their service as the roads are put into condition.

Central India offers an interesting point for the American bus manufacturer. There are more than 1000 miles of good motor roads in this section which are being covered by a bus company at Delhi. The road from Biaora to Shivpuri is 122 miles; from Mhow to Bharwani via Dhar is 96 miles; and from Sehore to Philchipur is 91 miles, all good roads and being highly patronized. However, bus development has about reached its limit in this province until more roads are added as the present transportation company controls the field. The popularity of motor

travel is causing the officials of the company to maintain good equipment with replacements quite frequently.

The only drawback in the Bombay Presidency to vastly increased bus travel is the monsoon which holds full sway for three months every year, making roads impassable, and often destroying long sections. In spite of this, bus transportation is highly developed, with several long and well surfaced roads. There are now 1600 miles of road centering around Gujarat, Mahableshwar and Poona. One bus company covers 233 miles with its service; a second 270 miles, and a third operates buses around the city of Dhulia. There are other lines operating between Poona and Satara, a distance of 68 miles; between Poona and Abmednagar, 75 miles; and between Poona and Nasik, 130 miles. There are also three lines operating out of Belgaum, using light weight trucks mostly of American make. The bus outlook in the Bombay Presidency is exceptionally fine, and offers a growing opportunity to the American manufacturer who will enter this territory.

The roads of Mysore Province usually are in such bad condition that ten to twelve miles an hour is the safety rate for bus travel. However, much is being done toward improving this condition, and the bus is rapidly becoming very popular for transportation. What lines are not operating enjoy a fair general business with a heavy rush during the hot weather when all who can take to the hills before the monsoons appear. These terrific storms wash away the bridges and turn the hill roads into raging torrents which makes the buses impracticable in many sections of Mysore.

Throughout India the public attitude is very favorable toward the motor bus. There is no demand for the special bus chassis as used in the United States. Manufacturers who enter the field will do well to confine their activities to the standard touring car or 1 to 2.5-ton truck chassis. The preference today is for light cars, and this probably will continue until India's national highways are equal to those in America. Bus transportation has come to stay in India, a point which the European manufacturers are taking more seriously than Americans, with a more concentrated effort being put forth by them toward greater sales of their cars and buses.

We Sometimes Think Our Streets Are Crowded and That Pedestrians Have No Chance. This Picture Was Taken on a Busy Street in Buenos Aires.

Living at Top Speed

By Walter Raleigh

Taking chances is normal with most city dwellers. It appears to the visiting European that every city worker enjoys living constantly within an inch of an accident. Every time one moves about the great metropolitan districts of America he testifies to an enormous faith in the sobriety, good sense, good will and good judgment of fellow-citizens.

The national habit of being always in a hurry, lures the majority into dangers. One of the minor accidents against which the subways have to contend is that which would-be passengers incur when they try to force open the train doors at the last minute. Sometimes they get their hands caught in the door; at other times their hands are wedged into the slot when the door pulls back suddenly. The danger that passengers would risk getting caught by trying to squeeze through the door as it was closing was so great among New Yorkers that when the subway installed the present automatic operators it added an ingenious protective device. The doors on such trains will recoil automatically if they come in contact with something before they reach the jamb.

On the street the pedestrian is forever taking chances with automobiles and street cars. One unfortunate twist of a driver's wrist, one mishap to a steering gear at one of those moments and a dozen persons might be run down. But the modern city pedestrian trusts both the man and the machine, trusts them so much that he seldom gives them a thought. He makes his bolt for the middle of the street, takes his chances there, gets across, saving his precious second, and goes on his way forgetful.

When traffic momentarily is tied up, blocking the street crossing but not actually in motion, the citizen's daredevilry takes a different form. By weaving up and down between the files of cars and passing through wherever a driver has left a few

inches between his bumper and the next, the pedestrian wins his way across without having to stand idly by. That there is barely a few inches between bumpers; that the engines are running and the gears are set, so that the car could lurch forward if the driver's foot happened to slip off the pedal; or that the driver in front may become confused by hasty police orders and back abruptly without giving notice, never seems to occur to the average man. The opportunity bobs up, it is seized; and by the grace of thousands of drivers, nothing happens.

Even the more easy-going persons run risks as well, just by being in a big city. Sudden gusts of high wind have blown pieces of scaffolding off tall buildings under construction and sent them hurtling down onto the sidewalk below. In Winter, icicles occasionally fall off the cornices and hit unwary pedestrians. And in the most peaceful weather, huge office safes sometimes fall while being hoisted into an upper story, window cleaners sometimes drop their brass cleaning sticks, painter's swings come unfastened, and ladders reinforce the taboo against walking under them.

Stranger accidents than these happen. A huge, slow-moving steam shovel ambling along the street would be, one would say, about the least dangerous of our modern contraptions. It is so bulky and noisy that any one ought to be able to keep out of its way. Yet not long ago one of them bound for some excavation work in Union Square, New York, was moving across the sidewalk to its destination when suddenly there was a loud crunching noise and one of the wheels crashed through the skylights of the subway below, showering glass and cement on the passengers awaiting their train. Not only that, but as the crane toppled over on one side, it caught a lamp post on the way, snapping it off, to the imminent danger of nearby-by pedestrians.

And, as if that were not strange enough, one accident this year occurred when a man was going through a revolving door. In some way the door turned before he was all the way in and caught one of his feet. He was so tightly wedged that nobody, not even a policeman, could push back the door enough to release him, and he was held for twenty minutes until an emergency police wagon came with acetylene torches and cut the door open.

City people vaguely know about all these accidents. They appear in the newspapers from day to day and are passed around by word of mouth. Now and then, too, the grinding screech of brakes, or even more, a side-swipe from a passing car, tells the pedestrian that he has had a narrow escape. But the effect of a lesson wears off quickly. Action becomes habitual, the desire for speed takes its place in the metropolitan citizens' second natures, and life for them simply would not be worth living if it had to go on under restraint.

Keeping Books for Small Trucking

By U. T. P. S.

"I have to keep books on my business, even if it is a small one," says M. W. Ives, truck operator who has the corporation commission license for lines running from Tulsa to Cleveland, Okla., and from Cleveland to Oklahoma City. "I can't keep track of small bills unless they are written down, and when I want a little credit I must be able to tell my banker just how my finances stand.

"I just have to keep books, and yet I can't spare time to manage a complicated system of bookkeeping, nor money to hire a clerk to do it for me. So I've worked out a way to keep track of things and, by adding three sets of figures and subtracting another, tell where I stand in regard to money matters. Maybe a regular accountant wouldn't call it bookkeeping, but all I need, besides the regular tools of my trade, bills, is just one ledger.

"The bills for merchandise hauled were what I started with. I make one, and have my drivers make one, for every little item we haul. The big wholesale houses put out bills of their own accord. We ask small shippers for one, and when I haul household furnishings I make a bill myself on blank paper that I carry for that purpose. I punch a couple of holes in the top of each of these bills, and slip them on a board with a couple of upright wires in one end, a post binder, I believe it is called. I have three of these boards, one holding unpaid bills to be collected from the consignee, one unpaid bills that are to be collected from the shipper, and one paid bills. I could get along with one 'unpaid' file, but it is much more convenient to have bills to be collected in Tulsa separate from those to be collected in Cleveland. At the end of each day's run I add the weight represented in all the bills of goods hauled that day, dividing the figures so that the 50 cent stuff is by itself, the 40 cent by itself. I add the totals, which gives the weight hauled and the revenue resulting, and figure my drivers' wages, which are a percent of revenue. I list this revenue in a ledger with collections and expenses. At the end of the week the seven totals are added, giving business done that week.

"When I balance my books and bring my bank book up to date, I retire these daily statements, just keeping the new balance and amount of unpaid bills to figure from. When I want to know where I am, financially, in between times, I add the bank balance, unpaid bills and collections and subtract drivers' wages and truck upkeep expenses.

"Of course the condition of trucks is a large item, so I also list the mileage run on each machine. The amount of depreciation, per mile, differs according to roads traveled, and the man at the wheel, but mileage tells some.

"I keep all old bills. They are very handy in figuring what kind of hauling is most profitable, and why; depreciation on paved roads as compared with ordinary un-paved oil field hauls, etc. They are also handy to have back of you when a shipper wants to know what hauling you have done for him in the past. Not long ago a wholesaler who was having trouble collecting a bill called to ask me if I had hauled the disputed items which he was trying to collect for and which the consignee said had never been delivered. Being able to tell him just what I had hauled was a help that he will remember.

"It is some trouble to get bills of everything, and filing and totaling takes a number of minutes every day when it would be pleasanter to do something else, but it makes my business a business instead of a guessing game. Also it helps me to collect small bills and check up small losses that would otherwise get by, and these count up so fast."

Twenty-nine railroads of America bar from service employes suffering from diabetes, particularly those being treated with insulin, report of the committee on occupational diseases of the medical and surgical section of the American Railway Association states, adding that victims constitute a menace because they are likely to lose consciousness.

"There is no aristocracy like honest service, however humble, and no inferiority like that conveyed by idleness, however moneyed."—*Kathleen Norris.*

The Dornier Flying Boat Over Water. Notice the Motors Are on Top of the Wings.

Air Transport Mail Service

By Anthony Wayne

Do you remember the days when you watched the transcontinental limited tear through the stations picking off the mail sacks as it went along, where by a simple device of a swinging arm the mail could be taken into the traveling post-office for sorting? This method gave fast service to hundreds of small towns, brought the mail through hours ahead, and gave a thrill to many a station hanger-on as the train roared down the tracks.

The air mail is now going through the same cycle of progress that the railway mail went through only, true to a faster age, the changes are more rapid. The air mail, not content to fly by night and under varied weather conditions, is to take on and unload bags while speeding over the routes.

Postmaster General Brown has witnessed the new method that is now receiving thorough trial before being extended to many of the mail routes. This device permits the airplanes to drop and pick up bags of mail while in flight. The mechanism is extremely simple, something like the swinging arm of the mail train. It will permit airplanes to fly at a speed of 100 miles an hour or more, while the mailbags are being delivered or taken on. With mail thus quickly taken on and put off, it will be possible for mail clerks to work their routes while the plane is in mid-air; sorting it and arranging it and then attaching it to the cable that will deliver it to the town that the aviator flies over. Youngstown, O.; Beaver Falls and Newcastle, Pa., are staging this historic step in the operation of giving the country faster air mail service.

The air mail pick-up and delivery is the invention of Dr. Lytile S. Adams of San Francisco. It is a two-fold process. The mail bags are picked up or dropped from the plane by a long, but light steel cable attached to an automatic winding wheel under the plane's fuselage. On the landing field the device consists of a two-sided light steel framework, 30 feet high, of a funnel shape joined at one end and coming to a sort of spout or nozzle. The mail plane swooping down with the mail sack attached to the end of the 75-foot cable skims over the field and the pilot swinging into the gap of the funnel stretched on the ground thus pulls the sack to the end where it is quickly detached with a shock-absorbing device at the end. Then a sack of mail can be lifted out. The long cable with hook attached is pulled through the funnel and guided easily to the small end where the sack is picked up, and as the plane carries it aloft the cable is pulled in and the mail taken up for sorting.

With such a method the mail plane will give the same service to smaller towns that the large cities have and the whole process will be speeded up. The steel chutes on the aviation fields will be simple of placing. Placed on a circular track they can swing about so as to assist the mail pilot coming down into the wind. Without having to stop mail is taken and left, and the plane is gone, all in the space of a very few seconds.

Another feature is the ability to pick up containers of gas and oil, thus refueling planes in the air. This has been done as easily and neatly as picking up or dropping mail sacks.

A net work of these devices would be a great boon to aviation as well as to the planes serviced. It has been pointed out that the large planes now being built to transport mail and express across the country on non-stop flights will have a great deal more room for cargoes because, instead of carrying an overload of fuel, the necessary quantities can be taken aboard en route.

Technically speaking, the device consists of this trap or flat funnel, which may be installed on an airport, or other vacant tract, the roof of a building or deck of a ship, and an automatic reeling-in apparatus which is installed in the plane. This reel is from 75 to 125 feet in length and consists of one-eighth inch cable, which has a breaking strength of two thousand pounds.

This cable is too light to injure or tend to drag down the plane. The use of this light cable and accelerating the load to a point where it will carry it is the secret of the success of the device. The cable, with a two and one-half inch steel ball attached to its free end, is lowered from the plane through a trap-door. The especially

designed ball has an adjustable spring insert which holds the pouch of mail to be delivered in such a manner as automatically to release itself when the contact is made within the trap. The ball proceeds through an escapement and effects a connection with the pouch to be taken aboard; thus one pouch is taken and one is left in the trap. In making this connection with the pouch to be taken a catapult is released which sends the bag forward in the direction the plane is traveling at a speed equal to that of the plane, thus absorbing the shock that might otherwise break the cable.

The ground apparatus called the funnel or trap is best described by comparing it to a huge funnel lying horizontally on a turn-table; a slot running through the top surface terminating at the small end of the funnel. Each mail sack has a thimble attached, with a short length of cable. This thimble has a slot running through it from end to end; the bag is placed in the catapult basket and the open end of the thimble placed over the escapement formed by the restriction at the end of the funnel with the slot in the thimble corresponding to the slot in the funnel. The ball is drawn into the thimble and carries it away with the load attached.

The front of the trap is 15 feet high by 30 to 60 feet wide, into which the pilot, by flying over, directs the pouch suspended as described on 75 feet of the cable reeled out. In this manner the ball and bag are actually "trapped" and the ball cannot pass out except through the escapement, releasing one pouch, making connection with the pouch to be taken and tripping the catapult. Every safety element is provided and tests show the actual use simpler than landing a plane.

He Flew a Million Miles

E. Hamilton Lee, senior pilot of the United States Air-Mail Service, told the story of commercial aviation and lamented the passing of air thrills, to radio listeners tuned in on the National Broadcasting chain the night of July 23. Lee has flown a million miles, 900,000 of it on mail routes.

He flew over the first experimental air routes established by the government, and when the transcontinental service was established he became a pilot on the Chicago-Omaha link. At present he flies a section of the transcontinental mail route for the Boeing Air Transport westward from Chicago. He said:

"I am happy to celebrate the flying of my millionth mile without a serious accident. But I feel that all the improvements and safety measures have taken most of the adventure out of the air mail business. Some of the most dramatic incidents of the pioneer era happened along the old transcontinental. A man flying alone over an ocean of black fog, with no idea of where he was, no communication—nothing but a couple of flares and a parachute, was not exactly attending afternoon tea.

"A flyer in the old days was in life, clear up to the hilt. One year ago the pilot was his own general, making his decisions on his own judgment alone. Today he receives the advice of a corps of weather observers, and the orders of ground superintendents, by radio telephone—not in code, but in spoken words. Directive radio by dots and dashes now tells him when he is off his course.

"As people become familiar with air travel there will be no more mystery about it. We are rapidly approaching the day when there will be no more excitement about flying than there is about railroading."

But No Meet Orders

What is believed to be the first position of airplane dispatcher has been created by Western Air Express at its Los Angeles airport. He will function almost the same as a railroad train dispatcher. Weather information and condition of all the company's 35 planes scattered over several states will be supplied to him. Hourly progress of planes on all divisions operated by the company will be in his hands, and he will give pilots their flying orders. Instructions to pilots and field managers in other cities will be given by radio.

Steel Trains in Brazil

New steel vestibuled trains are in operation on the Central of Brazil Railway, between Rio de Janeiro and Sao Paulo (499 kilometers). The minimum passage, compartment with berths for two persons, is $28.80, the ordinary passage with lower berth being $11.33. The trains are equipped with telephones and club and restaurant cars, and are said to be the most luxurious trains of South America.

A Modern Airport, Designed by a Chicago Company, Shows the Development of Such Facilities. Less Pretentious Landing Fields in Illinois Have Been Built and Equipped at a Cost of Half a Million Dollars.

Little Stories About Big Men

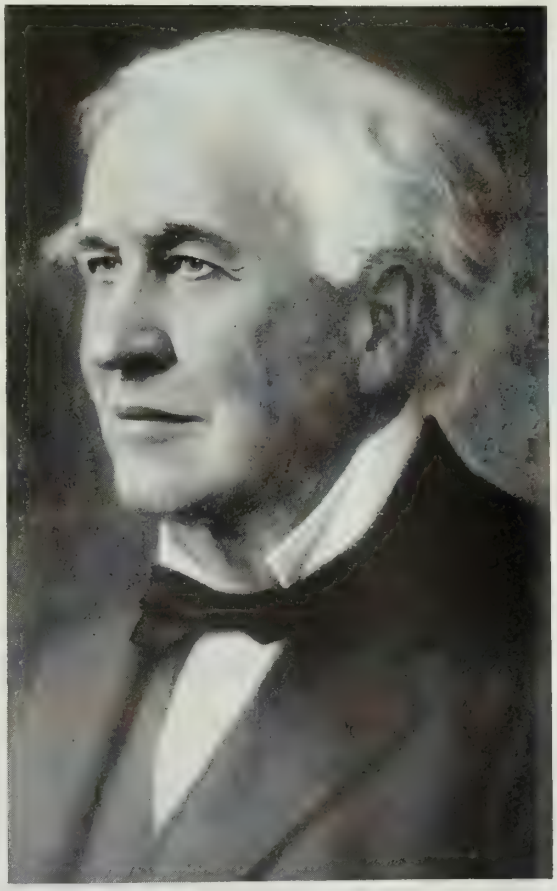
Fifty Years Ago the World was Skeptical About Edison's Incandescent Lamp

THOMAS EDISON, at Menlo Park, N. J., gave the first practical demonstration of an incandescent lamp just 50 years ago this month, and as a result founded the great light and power industry of America. It cost him more than $40,000, almost every cent he had received for his invention of the stock ticker, to complete his experiments on this lamp, and Marshall Fox, a reporter who wrote the story about it for the New York Herald almost lost his job. Thomas B. Connery, then the managing editor, blew up when he read the tale, declaring the Herald would be made ridiculous. That kind of light, Connery declared, had been proved to be against the laws of Nature. The world's leading scientific men had said such a thing was impossible. But the story aroused widespread interest, and is being reproduced photographically today as one of the valuable historical documents of the time.

In those dark days Edison's announcement did seem a bit fairy-like. Here is a paragraph from Fox's story:

> Edison's electric light, incredible as it may appear, is produced from a little piece of paper, a tiny strip of paper that a breath would blow away. Through this little strip of paper is passed an electric current, and the result is a bright, beautiful light, like the mellow sunset of an Italian autumn; this light, the inventor says, can be produced cheaper than the cheapest oil; were it not for the phonograph, the quadruplex telegraph, the telephone and the various other remarkable productions of the great inventor, the world might well hesitate to accept his assurance that such a beneficent result had been obtained, but as it is, his past achievements in science are sufficient guarantee that his claims are not without foundation.

Edison alone made more than 16,000 tests of various materials in his search for a satisfactory lamp filament. His success, on October 21, 1879, came in the face of solemn declarations that he could never make a commercially practicable incandescent lamp. No less an authority than Sir William Preece, the great English electrician of his time, announced in a lecture that the sub-division of the electric light was an absolute *ignis fatuus*, which, we pause to observe, is Latin for hokum.



Thomas A Edison

After the electric lamp came the Edison Illuminating Company and the first central station. It was opened in 1882 at 255-257 Pearl street, New York. Six "Jumbo" dynamos were set up in this old station. Today great generators which develop 80,000 horsepower make the word "Jumbo" sound woefully inadequate, just as the great lamps which develop 150,000 candlepower now turn the original Edison lamp into a tiny spark.

But the wheels of challenge turned, and the turnings were not always crowned with success, at least not with practical success. The cement-poured house never got very far, despite the fact that it was a pet idea of Edison's for several years. He was mixed up with flying as the result of some experiments he made for James Gordon Bennett in 1885. The "Helicopter" was designed to rise straight in the air, but the Edison "Helicopter" never flew; it wasn't light enough. But the net result of 60 years has more than justified the few real failures which fell to Edison's lot as an inventor.

Since his first patent was issued, in October, 1868, the records show that over 1150 patents have been taken out in his name. His genius has kept the trail to the patent office warm.

Following his invention of the incandescent lamp, a gradual appreciation of what Edison was doing for the world found place in the public consciousness, moving pictures! The Edison "effect" which forms the basis of our present radio tube. Gummed paper, Portland cement. All of these overshadow the many other Edison inventions amazing in number and variety. Edison's own words describe his career as no other words can in modest democratic fashion, characteristic of Edison, "Say, I've been mixed up in a whole lot of things, haven't I?"

Light's Golden Jubilee which will be celebrated October 21, 1929, to celebrate the 50th anniversary of the perfection of the incandescent lamp, will bring home to many persons the tremendous influence Edison has had on our national life, not only as the giver of light, but the giver of health, prosperity, safety and comfort. Undoubtedly Edison will take his place as our great industrial hero. America is a land of opportunity for youth, more so today than ever, infinitely more so than in the days when

Thomas A. Edison was moving to international fame.

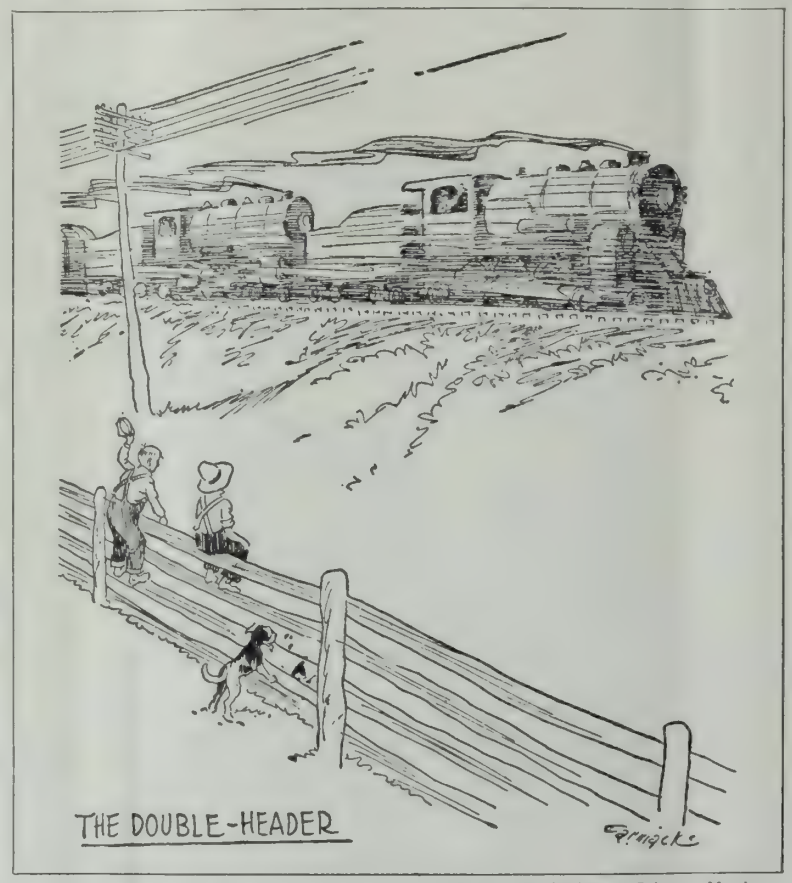
No one, not even Lincoln, better typifies the opportunities which lie before the youth of America, despite the handicaps which may surround them. For every opportunity that exists in politics and public life a thousand exist at the workbench of the nation. And Edison is a hero of the workbench.

Honest, persevering, plain, unassuming, gentle, his will always be a kindly and revered memory, a standard for the American of tomorrow as well as yesterday.

Edison was born in a small town, Milan, Ohio, February 11, 1847. He wasn't the youthful wonder of the place. He was not an apt pupil. In his own words, he was "usually at the foot of the class". One teacher reported him as "addled". When he was 13 he became a newsboy on the Grand Trunk Railroad between Port Huron and Detroit, and hadn't been on the job long when he set the baggage car on fire in the course of some experiments he was making with phosphorus in the little laboratory he had erected through the generosity of George Pullman of parlor car fame. For this demonstration the boy's ears were slapped so severely by someone, according to the accepted story, that the deafness resulted which is said to have "handicapped" him all through his life. However, when one contemplates the world today with its maddening increasing noise, deafness does not seem to be the handicap it is called by Edison's biographers. Edison, it should be remembered, created much of this noise himself. But he doesn't hear it.

Then he learned telegraphy, taught by the father of a child whose life he saved by jerking it from in front of a wild box car; and this profession, art, trade or whatever it may be called, turned him into a wanderer. He never kept one job very long, a failing common to the craft, at least in those days. But while he wandered around Edison turned to reading and studying the serious works of Faraday and other thrilling writers, all of whom helped him greatly.

RARE RECOLLECTIONS



—From the Christian Science Monitor

Remember When You Were Determined to Be an Engineer, and You Sat on the Fence and Watched the Freights Go By?

New York City was hardly more than an overgrown village in 1882 when Edison opened the first central station down in Pearl street to sell his new incandescent light to a doubting public. Not a single skyscraper had reared its head. Those were the days of hitching posts and stove-pipe hats, when high stoop residences with their tidy front gardens lined Fifth avenue, and Fifty-ninth street was out in the country. Homes were lighted for the most part by gas. The cluster of globes, the daily evening round with a lighted wax taper, the lamplighter on the streets, the sputtering arc lights, are familiar memories to many of us. Hotels still displayed the warning sign in bedrooms, "Don't blow out the gas." Most of our "big" cities were overgrown country towns then, as we think of such matters today; and some of them in the East still believe there is nothing worth while west of Buffalo.

Monday, Sept. 4, 1882, was the eventful day of the official opening in Pearl street. At 3 p.m. steam was admitted to the engine of one Jumbo, current was generated, turned into the 13 miles of underground conductors, the electric light system was started and a new art introduced to the world. At the end of the first month, the Pearl street station had 59 customers. By the first year, the number had reached 445. Light was supplied free for three months while the meter system was thoroughly tested. The first bill for $50.40 was collected from the Anaconda Brass & Copper Co.

The Pearl street plant was a huge success. It supplied about 400 lamps at the start but within a few years there were eleven Jumbo generators, nearly 1000 consumers, and more than 14,000 lamps in circuit. The station ran for eight years steadily, stopping only a few days because of fire. One of the original Jumbos is still in existence, having been preserved by the company for historical purposes.

Today there is in progress Light's Golden Jubilee, a series of nationwide celebrations of stupendous proportions in honor of Thomas Edison and his incandescent light. For it was that light which prompted the first central station and was the origin not only of New York City's present electrical system, but also of an advance in every field of civilized effort that has no equal in any other period of history.

Most of the decisions in business, commercial or industrial, are based, as in the courts, upon precedents. We don't ask the failures in life for

WHICH WILL HE USE? REVERSE LEVER OR THROTTLE?

Scores of times on every run the engineman must answer this question.

Fuel Economy and Locomotive Efficiency Depend Upon His Decision.

We all know that partial throttle combined with longer cut-off than is required may use double the volume of steam necessary.

We all know that a wide open throttle with the shortest cut-off possible is the only correct and economical method.

Ask any test plant engineer if he can select the correct point of cut-off for maximum locomotive output throughout the range of speeds under the same conditions as an engineman must select these points in daily service.

The engineman is doing his best but he can be greatly assisted by the

LOCO VALVE PILOT

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NEW YORK

a definition of the word success, although the reasons for failure might serve the purpose. Men who have not made good very often resent stories of success, and blame their poor circumstances on ill luck, lack of opportunity, the absence of pull, forgetting that all through history the men who belonged at the top usually went there. And now, as always, what successful men say about getting on in the world is worth reading. Some put great stress on education but immediately add that this is worthless without hard work.

Paul Shoup, who became president of the Southern Pacific a year ago, has no particular program for success. "There is no recipe for success," said he one day not long ago. "Moreover not everyone agrees on what constitutes success. You can't measure success entirely by the yardstick of wealth.

"A high type of success is to build up a happy home around yourself. A man's home life colors his entire existence. You're successful if you win the true, enduring love of a fine woman.

"In other words the thing that counts is spiritual development. Without that any form of success is worthless. Some get it one way, some another. What it amounts to is keeping bright the flame you were given when you came into the world—keeping it burning bright and clear until it finally goes out.

"It's what's inside the man that counts—his attitude toward life and his fellow-men."

To succeed in the work in which you are really interested is success. At least it is all the success any man needs to worry about. It is happiness, too, and when you are happy, doing things you like to do, you make enduring friendships.

"It is a good thing to be rich," said Seneca, the philosopher, "and it is a good thing to be strong, but it is a better thing to be loved of many friends."

Carl Gray, president of the Union Pacific System, had some interesting things to say about young men in railroading, one day in June, about the time the graduates were starting out hopefully to rescue the world. "University men," said he, "are not taking any greater part in railroad business now than they have in the past. The college graduate, as a rule, is not content to take up the routine, manual work of the railroad business, and they seldom will consider employment in a department where they actually can learn the business. Usually they want to work in the legal, engineering or the higher mechanical departments. On the other hand the man who starts in the yards and works up in the transportation department is the man who eventually becomes the executive while the college man remains a specialist in his particular department."

In his experience with college men, Mr. Gray explained, he has found all of them eager to become railroad men providing they can be assured the job they take eventually will lead to that of an executive.

"My advice to the young man is not to enter the railroad business or any other line unless he can be happy just by working at the first job he takes. Most of our men are not even high school graduates and many of our executives were forced to go to work at an early age. That necessity to make a living made them work harder and eliminate the handicap of not having a wider education."

Mr. Gray pointed to the gray-haired men in the cabs of the locomotives that passed, and the gold braid denoting service that bedecked the sleeves of conductors.

"Those are the men who in the long run make the railroads. If they got disgusted and quit because they didn't become superintendents, the roads would not have the experienced and careful men at the throttles of the engines that pull the trains."

Charles M. Schwab said recently: "I am in favor of the college education, but in recent years it doesn't seem as if the majority of young people who go to college get a college education. I am not prepared to say where the trouble is, but something is wrong somewhere.

"A friend of mine said to his partner, 'I'm afraid we'll have to let the newest clerk go. He doesn't dress neatly nor speak very good English.'

"'Oh, let's give him another month,' replied the partner. 'He's improving and after all, he's been out of college only six months.'"

The Magic of Jim Duffy

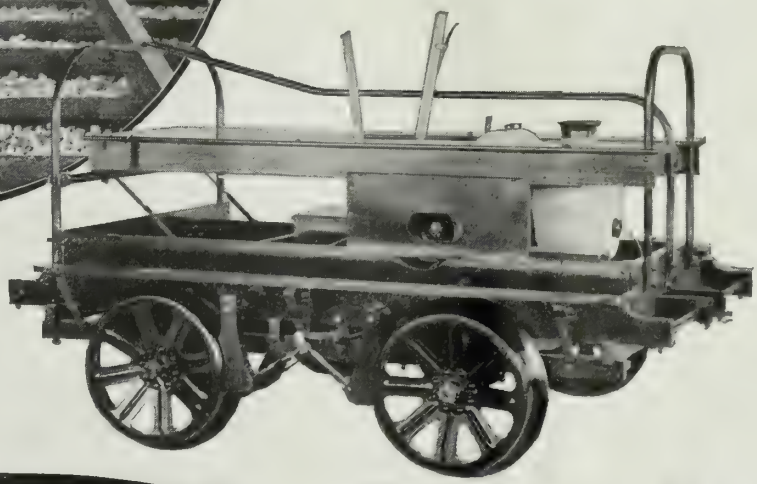
One of the standard rules of newspaper offices is that forbidding a reporter to write anything which, to all intelligent persons, ought to be perfectly obvious. Still, it must be remembered that new generations are coming along to take the places of those now in charge of things, and some of these confident young men may not know that James B. Duffy has long been general passenger agent in Los Angeles for the Santa Fe System. Neither would the rising generation know, if we keep silent, that before the first paragraph of this veracious chronicle could be proof-read the same genial gentleman was notified that, beginning October 1, his title would be changed to assistant passenger traffic manager of the railway. The official announcement comes from the office of W. J. Black at Chicago, the head of the whole works so far as passenger traffic is concerned. Fortunately, Mr. Duffy's headquarters will continue to be right here in Los Angeles.

James B. Duffy.

We remember an occasion, years ago, in Chicago, when two rather important business men stopped at a luncheon table to ask the general passenger agent of a certain line to send them tickets that evening for a trip to New York. "You're going right past the office, Will," said the thoughtless railroad man, "why not stop and get the tickets and be certain of your berths?" That road didn't get the business. The incident emphasized definitely the overwhelming importance of personality in the passenger business, as in every other department of traffic, or, for that matter, in all business. One man after another will go to Duffy's table in a club, hand him money, tell him what he wants, and smilingly go his way, confident that he will get what he wants if the road has it.

Successful passenger and freight traffic managers in most cases have their big jobs because they can draw the public to their tables or their offices, and keep its friendly regard. A man might be starting for Washington to testify in a complaint about rates. He might be a prime mover against the well known Pullman surcharge, which, by the way, is a railroad surcharge; but he would never hesitate to ask the general passenger agent to get his ticket for him, provided the gentleman was of the Duffy

The Railroad World Knows the Responsibility of Leadership



M-2—Standard Section Car
6-11 H.P. Seats 10 Men.
Weighs 1000 Pounds.

Fairmont AND Mudge

RAILWAY MOTOR CARS

It is one thing to achieve success—it is another thing to *hold* it! The builders of Fairmont and Mudge Railway Motor Cars keep this ever in mind. The railroad world recognizes Fairmont quality—*over half the motor cars in use are Fairmont products.* Nevertheless, this Company, recognizing its responsibility to the railway industry, is increasing its effort to uphold and *sustain* that quality which has earned Leadership.

Performance on the Job Counts

FAIRMONT AND MUDGE PRODUCTS

Section Motor Cars
A2—M2—S2
M14—WS2
Inspection Motor Cars
C1—M19—MM9
Weed Mowers and Discers
M24—M23
Weed Burners
B (M27)—C (M27)
Gang and Power Cars
MT2—A4—A5
Push Cars and Trailers
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BALDWIN LOCOMOTIVE WORKS, *Foreign Representative*

THE RAILROAD WORLD KNOWS

A Corner of the Harvey Book Shop in the New Cleveland Terminal.

stamp—and there are only a few.

Jim Duffy, in sharp contrast to the picture shown here, is a jovial chap in his best and most productive years —he was born in Chicago January 3, 1877—and his face is never set and grim. The man is human in the most unexpected ways; indeed, he couldn't hold his place if he were not just this kind of man. Why many persons' faces freeze in front of a camera has never been explained. Jim Duffy's portrait should be taken when he is telling one of his inexhaustible Irish stories. It was Charles Wagner who said, in that wonderful book of his, The Simple Life, that you never turn a man away from his mission in life by telling him a good story and making him laugh. Jim Duffy is a fine exemplification of that beautiful belief. Some men gain customers by playing golf or poker with them and letting them win. Duffy gets them with his personality, and the best thing about it is that they never suspect it. He is a shrewd and kindly Irishman with a perfectly limitless supply of lower berths to all points reached by the Santa Fe. If, perchance, Lower 2 really has been taken, and the passenger is compelled to accept an upper, the grief-stricken look on Duffy's face makes the customer ashamed of himself for insisting upon having something that couldn't be had for love or money.

Jim Duffy has had a long and useful railroad career. All his working life has been spent with the one company. For 20 years he was general agent for the Santa Fe in San Francisco, and had the distinction of being the senior and at the same time the youngest man in his branch of transportation in that city. When the government had the roads Mr. Duffy had charge of all passenger business for the Railroad Administration in the Pacific Coast Region. Of 112 passenger offices his own was rated as Number One in efficiency.

Experience has taught Mr. Duffy the value of adequate publicity, but this element he applies only to the passenger business. He will talk your arm off about the Santa Fe and its service, but it takes two weeks to learn a thing about the man himself. The Keystone Photo Service supplied the picture, and it ought to be ashamed of itself. Jim Duffy isn't like that; he's human and friendly. Why do people go on saying the camera never lies?

Oldest Railway in England Electrified

England's oldest continuously operated railway, the Mumbles Railway Line in Wales, has been electrified. The railway, whose officers say it is the oldest in the world, was authorized by Act of Parliament June 29, 1804. At first it was used chiefly for carrying ore. Today its predominant traffic is passenger transportation for business, recreation and pleasure. As originally constructed, the rails consisted of three-foot lengths of angle iron dogged into blocks of granite, the car wheels being unflanged. For years this served their purpose. When the first reform in construction occurred the angle irons were replaced by rails weighing 28 pounds to the yard. Later the increase of traffic necessitated rails of 56 pounds to the yard, and these in turn have been changed to 85 pound rails.

The original passenger vehicles were old-fashioned stage coaches, which ran on rails and were drawn by one horse. In order to accommodate a large number of passengers, larger vehicles improvised from ore cars were put into use in the early part of the Nineteenth Century. These vehicles were built somewhat on the principle of the Irish jaunting car, carried about 50 persons, and were drawn by two horses tandem. About 1816, special covered coaches were put into operation for passenger service which by that time had become the sole business of the company; the ore traffic had been discontinued, owing to the closing down of the local iron mines. These horse-drawn coaches continued in use until 1877, when the owners adopted steam-drawn coaches.

The first steam-drawn coaches resembled greatly the old horse-drawn tramcars in the United States, except that they had seats on top which were uncovered. Naturally, these were in great demand in good weather, but were most unsatisfactory in cold or wet weather. Later on, some longer coaches were built which had a general resemblance to the day coaches on American railways. Long trains of these coaches were run at intervals of one to two hours; but with the growth of suburban population this means of transportation was found insufficient. Now the line is electrified to provide faster and more frequent service.

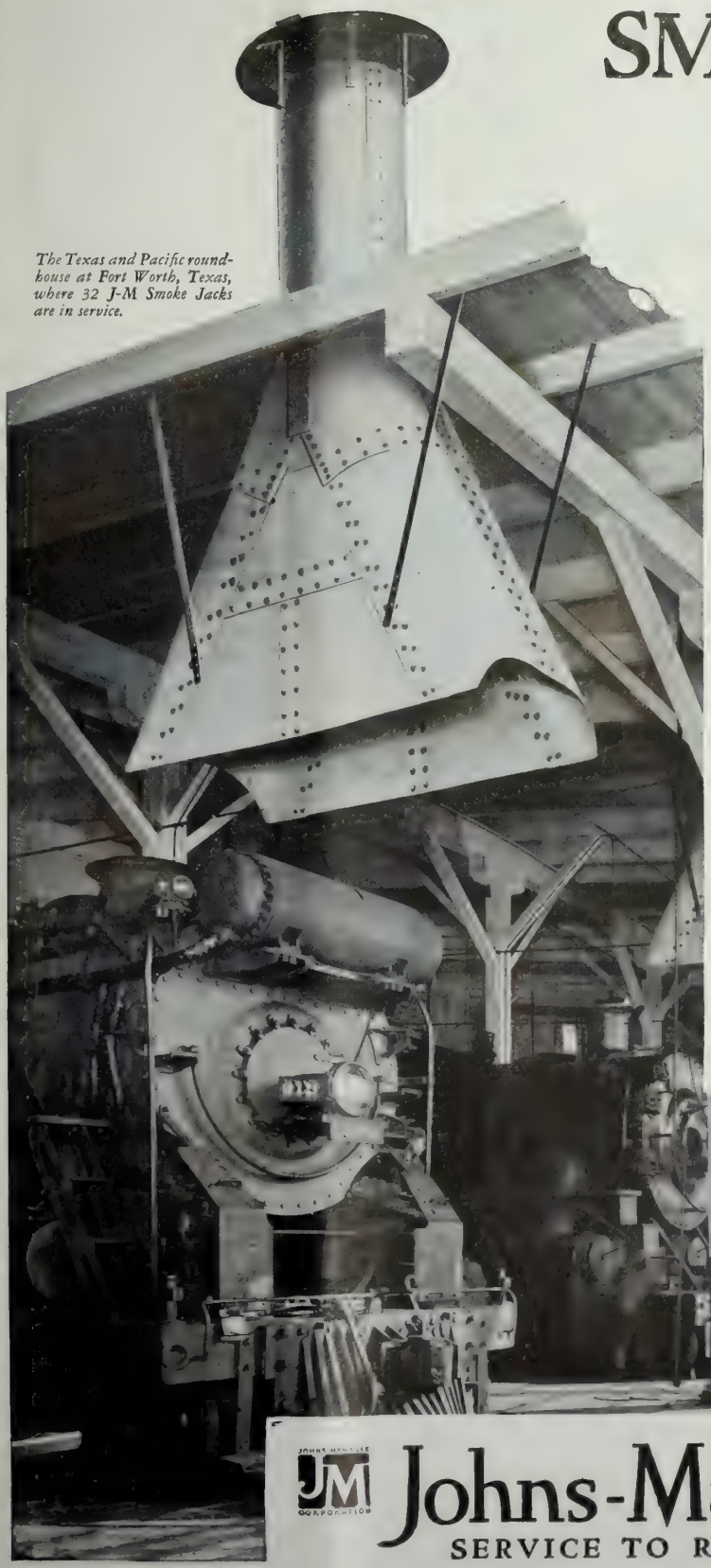
"The foundation of all reasoning is the right to express any opinion."—*Arthur Garfield Hays.*

Up and OUT *go roundhouse* FUMES

when Johns-Manville

SMOKE JACKS

are on the job



The Texas and Pacific roundhouse at Fort Worth, Texas, where 32 J-M Smoke Jacks are in service.

JOHNS-MANVILLE Smoke Jacks are so designed that smoke fumes and gases are completely removed from the roundhouse, not only when the locomotive is spotted at the pit, but while it is entering or leaving the building. With J-M Smoke Jacks the air in the roundhouse can be kept as clear as in any other shop in the yard.

All J-M Smoke Jacks are made of Transite—a dense, monolithic sheet of asbestos fibre and Portland Cement, which is unaffected by fire, rot, or rust, and is immune to the action of acid fumes and cinders. Transite combines great strength and durability with lightness in weight, and because it requires no painting or other maintenance, is the most economical construction for this type of equipment. There are instances where J-M Smoke Jacks have been in use for more than 15 years without replacement of any kind. That's real economy!

J-M Smoke Jacks are designed in a variety of styles and sizes to meet varied conditions of roundhouse service. If your conditions require special designs, Johns-Manville engineers will gladly cooperate in designing and producing the proper type of Jack to give you the most efficient service possible.

Address Railroad Department: Johns-Manville Corporation, New York, Chicago, Cleveland, or San Francisco.

Johns-Manville

SERVICE TO RAILROADS

Officers of the Master Car Builders' & Supervisors' Association. Left to Right: F. A. Starr, K. F. Nystrom, C. J. Wymer, S. O. Taylor, President, Standing; George W. Moore, A. S. Sternberg, Secretary-Treasurer.

The New M.C.B. A Sturdy Youngster

Membership Now 1697

By H. A. Smith

THE NEW Master Car Builders & Supervisors Association, with a membership of 1697, started its first annual convention in a very auspicious fashion. A remarkably interesting program was presented and great enthusiasm shown in the work and future of the association by the large number of men who were in attendance.

The freight and passenger car in railroading has in recent years not been given as much attention as it deserves, considering its important place as the carrier of the pay load.

The passenger car advanced little until a few years ago when competition started its tremendous inroads on passenger revenues. Then the roads, one by one, discovered that more modern and comfortable cars were the best club with which to meet competition.

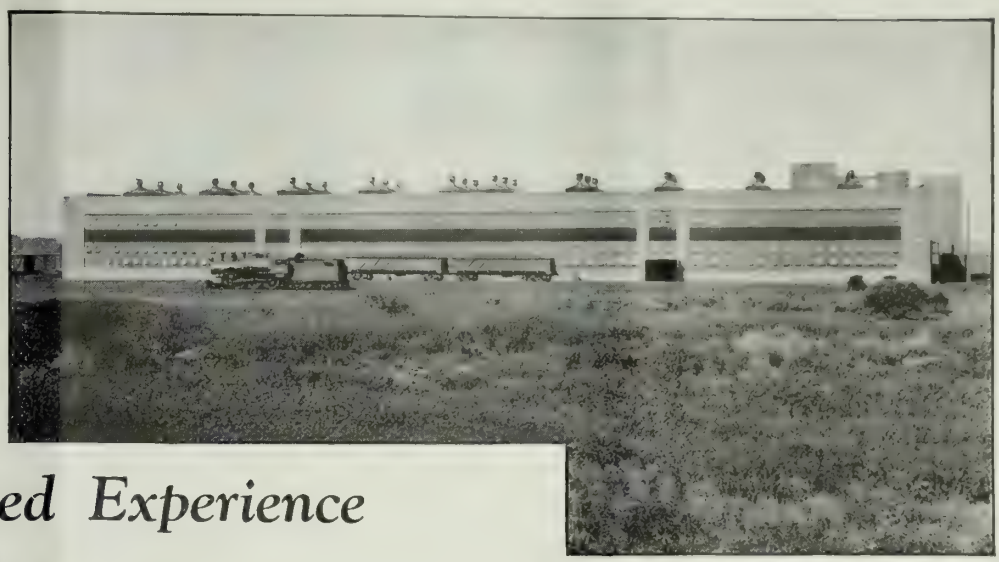
With the freight car advancement has been along the line of greater capacity and longer trains in recent years but with new conditions developing which require speeding up of freight movements new problems of design and operation will develop.

These changing conditions which will make the car a more important factor naturally make this a most logical time for the launching of this new organization. If the officers of our roads could have attended the three-day meeting of this group, at the Sherman Hotel in Chicago the early part of September, they would surely have been impressed with the fact that this association is well equipped to cooperate in the future development of the car department.

Outstanding addresses on the program included the ones made by T. W. Demarest, superintendent motive power, Pennsylvania, western region; Dr. Samuel N. Stevens of Northwestern University, and C. B. Coates, electrical engineer of the Chicago Pneumatic Tool Co. Mr. Demarest's subject was "Freight Equipment Needs." He said in part:

"Some of you, perhaps, were fortunate enough to be able to attend the last meeting of the mechanical division, American Railway Association, at Los Angeles. I regret you were not all able to be there. There were two outstanding developments at that meeting—one, the report of the committee on friction-draft gears; the other, the final adoption by the division of the principle that, in future construction and replacements, cast steel truck side frames will be used. The division from year to year has gradually defined condition and strength requirements, effective as yet principally to truck and underframe construction. In spite of the adoption of a minimum sectional area of center sills and the Type D coupler, owing to increased car capacities, increased length and weight of trains, increased speeds, and the natural stress under which the entire movement is taking place, we were gradually getting back, in so far as center-sill damage was concerned, to our previous situation. We had forgotten,

Chicago, Rock Island
& Pacific Railway
Car Repair Shop,
El Reno, Oklahoma



Unequalled Experience *in* CONSTRUCTION WORK *for* RAILROADS

The long experience of this organization in railroad work—our intimat knowledge of a railroad's problems—are proven by the construction of 2i locomotive terminals, 34 shops, 43 power plants and many passenger and freight terminals and other general building and engineering assignments.

In almost every case enumerated, we did the design as well as the construction—cooperating to the fullest extent with the client's own engineering department and producing the new facilities with speed at low cost.

Among our many railroad clients have been the following:

Atlantic Coast Line Railroad
Baltimore & Ohio Railroad
Boston & Maine Railroad
Buffalo, Rochester & Pittsburgh Railway
Canadian Pacific Railway
Central Railroad of New Jersey
Chesapeake & Ohio Railway
Chicago, Burlington & Quincy Railroad
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Chicago & Eastern Illinois Railroad
Chicago and Northwestern Railway
Clinchfield Railroad
Erie Railroad
Great Northern Railway
Illinois Central Railroad
Lehigh Valley Railroad
Missouri Pacific Railroad
Mobile & Ohio Railroad
Pennsylvania Railroad
Pittsburgh & Shawmut Railroad
Reading Company
Rutland Railroad
Southern Pacific Lines
Southern Railway
Terminal Railroad Assoc. of St. Louis
Union Pacific Railroad
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UNITED ENGINEERS
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Specialists in the design and construction of
SHOPS
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PHILADELPHIA NEW YORK NEWARK CHICAGO
LOS ANGELES BUENOS AIRES RIO DE JANEIRO MONTREAL

MAXIMUM RETURN TO CLIENTS PER DOLLAR INVESTED

for the time being, that there was another element in the combination that would have to progress concurrently, and that was the friction draft gear. The committee report was a most timely one and for the first time presented to all of us the relative strength and weaknesses of the various types of gears, and indicated to all of us, the railroad user as well as the manufacturer, the lines along which we shall have to work to bring this detail up to the point that, instead of the car protecting it, it will protect the car and in so doing, protect itself.

"The adoption of the cast steel side frames for trucks is one of the biggest advances made by the association, and to me ranks, in what it will accomplish, with the adoption of the air brake and the automatic coupler, and while the action of the division was not entirely complete, it being permissive under certain conditions to use the older types of cast steel frames, it is only a question of time until no side frame will be countenanced unless it conforms to A. R. A. standards at the time it is applied.

"Aside from the question of increased safety, I wonder whether the full significance of the action strikes you. It means decreased labor and time in inspection, in interchange, in transportation yards, and in repairs on freight car repair tracks. You will begin to obtain these advantages from the moment you begin to apply them. It will reduce truck maintenance to wheel and axle work, and as these details must be continuously maintained, it provides, in effect, for a truck that never wears out. On freight car replacements, it provides a truck which may continuously be reapplied to new car bodies, reducing the cost of replacement practically to that of the new body, as couplers, draft gears and the major portion of the air brake should also be recoverable. It is incomprehensible to me, with all of these advantages in sight, that the application is not generally proceeding at a more rapid rate.

"The journal bearing in the truck construction and the hot box, train delays, set-off cars and maintenance expense, is still a nut to crack. The answer is fairly clear, i.e., eventually, perhaps, the roller bearing; but until the capital charge for application is materially reduced, and until a common standard of axle and box installation can be adopted, its use seems prohibitive in freight service."

Dr. Stevens, who is professor of psychology at Northwestern University, is a very dynamic speaker and gave the members a most interesting talk on the "Psychological Aspects of Handling Men." Mr. Coates's paper on "High Frequency Portable Electric Tools" was illustrated with stereopticon slides. An abstract of it will appear in a later issue.

One of the most interesting side lights was the spirit of cooperation shown by the directors and officers of the association to make this a great meeting and the organization an important one in railroad work. S. O. Taylor of the Missouri Pacific, president, made a most excellent presiding officer, and was at all times ably supported by the other officers. George W. Moore, assistant S.M.P. of the St. Louis & San Francisco, was chairman of the board of directors; C. J. Wymer of the Chicago & Eastern Illinois, first vice president and in charge of the program committee; K. F. Nystrom of the Chicago, Milwaukee, St. Paul & Pacific, second vice president; F. A. Starr of the Chesapeake & Ohio, third vice president; L. R. Christy of the Gulf Coast Lines, fourth vice president, and A. S. Sternberg of the Belt Railway of Chicago, secretary and treasurer.

Mr. Nystrom, as chairman of the membership committee, asked every member to cooperate in securing new members for the association and said that it should be possible for every one to secure at least ten new members during the ensuing year. "Rather ambitious," said he, "but let's go. There is much work to be done; this group has an opportunity to become one of the most formidable and valuable of railroad organizations."

Officers for the coming year were elected as follows: President, C. J. Wymer, superintendent, car department, Chicago & Eastern Illinois, Danville, Ill.; first vice president, K. F. Nystrom, superintendent, car department, the Milwaukee at the city of that name; second vice president, F. A. Starr, supervisor of reclamation, Chesapeake & Ohio, Richmond, Va.; third vice president, L. R. Christy, master car builder, Gulf Coast Lines, Houston; fourth vice president, E. J. Robertson, superintendent, car department, Soo Lines, Minneapolis; secretary-treasurer, A. S. Sternberg, master car builder, Belt Railway of Chicago.

The new board of directors: Chairman, S. O. Taylor, St. Louis; F. H. Becherer, superintendent, car department, Central of New Jersey, Jersey City; R. J. Overton, general foreman, car repairs, Southern Railway, Spencer, N. C.; D. E. Bell, A.R.A. instructor, Canadian National, Winnipeg; A. J. Krueger, master car builder, New York, Chicago & St. Louis, Cleveland.

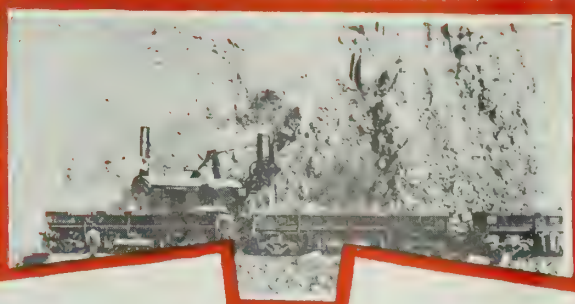
Still Another Anniversary

It is doubtful whether many persons outside of Pennsylvania ever heard of the Portage Railroad, but nevertheless it has a distinct place in the history of American transportation. That place was made secure October 1 when a monument, erected by the state on the William Penn Highway about two miles east of Cresson and 15 miles west of Altoona, to commemorate the 100th anniversary of the building of the Old Portage Railroad, was unveiled in the presence of a distinguished gathering. The Pennsylvania ran special trains from Philadelphia and Pittsburgh for the occasion.

The Portage Railroad was an important part of the "Main Line of Public Works" of Pennsylvania, that remarkable rail and water transportation system between Philadelphia and Pittsburgh, started in 1829 and opened for traffic in 1834. The "Public Works" were the predecessor of the Pennsylvania Railroad, a fact which Gov. John Fisher recognized in appointing the monument commission by designating William Elmer of Philadelphia, special engineer, Pennsylvania Railroad, as chairman of the body. Mr. Elmer presided at the unveiling ceremonies. The Pennsylvania Railroad middle division band played and the Altoona Works choir led the singing of "America". Charles M. Schwab spoke, after which A. J. County, vice president of the Pennsylvania Railroad, presented the monument to the Commonwealth, and Governor Fisher responded on behalf of the state.

The monument erected by the commission is 12 feet square at the base and is built of stone sleepers taken from the roadbed of the Old Portage Railroad. When many of the early railroads in the United States were built stone blocks, instead of cross ties, were used to support the rails. Stone sleepers in their original positions can still be seen along the right of way of the Old Portage Railroad and also of the Philadelphia & Columbia Railroad, another link in the "Main Line of Public Works." In this type of construction cast-iron rail "chairs" were bolted to the stone blocks. The bolts were anchored in holes drilled in the stone by pouring molten lead around them. Edge rails of iron, 18 feet long and weighing 39½ pounds to the yard, were laid on the levels of the Portage.

SAVE TIME



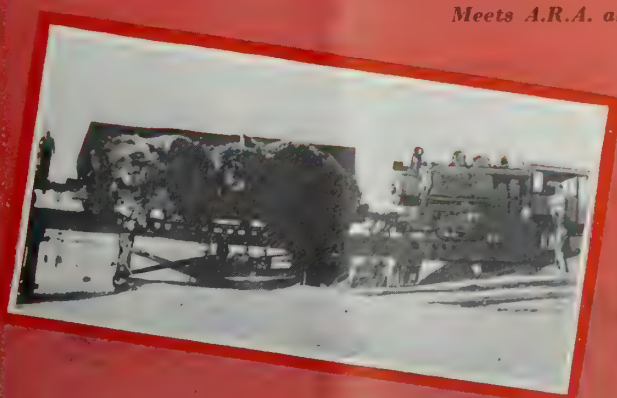
SAVE LABOR

MAGOR
Automatic Air Dump
CARS

THE Magor Automatic Air Dump Car has many advantages which assure big savings of time and labor and absolute safety in every phase of dump car operation.

It will dump anything that can be loaded. The center of gravity is well within the bounds of safety at all times assuring stability on track. The body is under complete control throughout the dumping and righting operation. All violent shocks are eliminated. The car cannot dump prematurely or while in transit. The car dumps to either side without time killing adjustments. All loads are dumped clear of track ballast. Everything to save time, labor and assure safety.

Meets A.R.A. and I.C.C. requirements



MAGOR CAR CORPORATION

50 Church Street New York

Paul Shoup
President, S. P. Co., Elected to Head the A. E. R. A.

Electric Railways

(Continued from Page 24)

of his railways are about as big as London itself. This, he said, covers approximately 1,820 square miles, has a population of about 8,700,000, which is served by 118 route miles of underground railways, 346 route miles of tramways, and about 5,500 omnibuses. It is also served by an extensive system of suburban railways.

In 1928, these forms of transport carried four billion passengers, which is equal to about 510 journeys per capita. Private cars also play an important part in transport, although there is only one auto at present for every 45 inhabitants, a record far short of that of any American city. The total capital expended in these systems is approximately $540,000,000, of which 85 per cent is company owned, and 15 per cent is municipal.

Outstanding events of interest to every railway man were the presentation of the Charles A. Coffin award to the Chicago, South Shore & South Bend Railroad, which won out of a field of contestants all of which had excellent presentations, and the symposium on transportation given in talking movies. The talking movies were introduced by the managing director of the association, Charles Gordon, who spoke briefly of the significance of this method of presenting a wide range of information in concise form.

In order to encourage members and visitors to inspect the very wonderful exhibits in the basement of the auditorium, special recess periods were arranged. These exhibits, it was declared by the experienced members were perhaps more varied than any seen in other years. Very nearly all the space available was taken before the convention opened. This space, it was reported, amounted to 106,338 square feet of which 104,378 feet had been filled.

In the closing session of the convention a comprehensive program for the coming year was adopted. This indicated that the principal effort is to be toward increasing speed and comfort, which seem to be the public demand. Almost every speaker at the convention emphasized the necessity for getting rail cars away from street intersections more quickly and for giving faster rides. At present the average speed made by rail cars in cities is about ten miles an hour. A car has been developed which will make 30 miles an hour and accelerate quicker than an automobile. Motion pictures were used to demonstrate this fact.

While efforts will be made to reduce traffic congestion, the industry will not go so far as to ask prohibition of parking everywhere. Committees of traffic experts which studied the situation during the past year said local conditions must govern the making of parking regulations.

Greater sales efforts, aided by advertising, will mark the year. At present the industry is spending $10,000,000 annually for advertising. Practically no advertising was done prior to 1919. All publicity channels, including newspapers, car signs, billboards and leaflets will be used. The house-to-house sales canvass, offering transportation in quantities at reduced rates, will be a feature of the year's drive.

Renewed efforts to obtain tax reduction will be made. Half a dozen states and some 75 cities have relieved the industry in recent years of paving charges. The total tax bill of the industry now approximates 10 per cent of the revenue received. Last year it was about the same as the net income of all companies.

Bus competition no longer occupies a major position in the industry's deliberations. Most of the valuable city bus lines have been acquired by rail companies. Bus discussion this year related to better operating practice. The chief competition now is the private motor car, and since there are 25,000,000 of them they are causing concern to the industry.

Good advice is often annoying; bad advice never is.—*Gondinet.*

Is any man free except the one who can pass his life as he pleases?—*Persius.*

The liberty of the individual must be thus far limited; he must not make himself a nuisance to other people.—*J. S. Mill.*

The highest air mail route in the world is that between Cheyenne, Wyoming and Pueblo, Colo. From one end of the line to the other the route averages 6,000 feet above sea level, and much of the way the airplanes travel at an altitude of 7,000 to 10,000 feet. The Western Air Express operates the mail planes over this route, and in spite of the difficulties involved, is rendering highly satisfactory service.

Atlantic City's New Auditorium, Where the A. E. R. A. Convention Was Held.

Improved Operation Is Made Possible

—*By Improved Motive Power*

IN the first four months of this year average fuel consumption was only 135 pounds per 1,000 gross-ton-miles as compared with 137 pounds in 1928, 141 pounds in 1927 and 150 pounds in 1926.

This remarkable improvement in fuel economy is due to more intensive locomotive operation and improved motive power.

Outstanding among the factors that made this improved locomotive performance possible, are Elesco superheaters and Elesco feed water heaters.

On any Elesco-equipped locomotive these two factors represent at least 35 per cent of the sustained steaming capacity.

This extra steaming capacity—hauling capacity—represents a worthwhile increase in net earnings.

THE SUPERHEATER COMPANY

17 East 42nd Street
NEW YORK

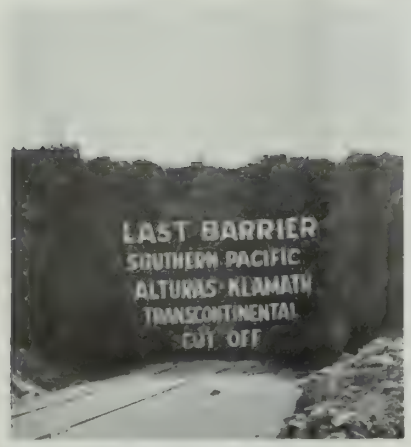
ELESCO

Peoples Gas Building
CHICAGO

Canada: The Superheater Company, Limited, Montreal

SUPERHEATERS EXHAUST STEAM INJECTORS FEED WATER HEATERS
SUPERHEATED STEAM PYROMETERS

A-347



Before the Crash

The New Modoc Line Cuts Distance

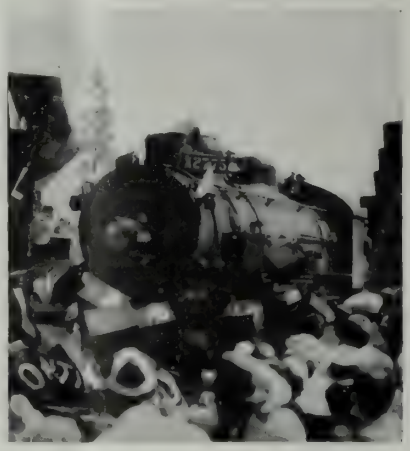
When Southern Pacific engine 2775 crashed through the improvised mountain barrier shown here, it marked the opening of a new $9,000,000 rail line connecting Klamath Falls, Ore., on the Cascade line of the Shasta Route with Fernley, Nev., on the Overland Route. The line is a new transcontinental cut-off east and has been named the "Modoc Line."

The mountain barrier was constructed across the track at Hackamore as symbolical of the 96-mile railroad gap between Klamath Falls and Alturas, Cal. This gap was the true barrier to the development of the country between the two towns. It also stopped the natural flow via the Overland Route of freight between the East and Pacific Northwest points.

Five special trains from Portland, Klamath Falls, San Francisco, Oakland, Sacramento, Reno, Ogden, Salt Lake, Lakeview and Alturas arrived at Hackamore shortly before noon Sept. 14. More than 3000 persons attended the ceremonies. The next day, Sept. 15, the first through passenger train service was established on the new line between Portland and Ogden. The line from Klamath Falls to Alturas, including the branch line from Alturas to Lakeview, is operated under the supervision of the Shasta division. The line south from Alturas to its junction with the Overland Route at Fernley and the Westwood branch is under the supervision of the Salt Lake division.

Construction work on the new line between Klamath Falls and Alturas began July 17, 1928, with the approval of the Interstate Commerce Commission. Railhead connection was made July 13, 1929, at a point 59.8 miles southeast of Klamath Falls. The track is of standard construction, and 73 of its 96 miles are tangent. The remainder is curved track as follows: From naught to 3 degrees, 19.4 miles; from 4 degrees to 8 degrees, 1.9 miles; from 8 degrees to 10 degrees, 0.9 mile.

This new line connects the Cascade line of the Shasta Route with the former Nevada - California - Oregon Railroad at Alturas. The N. C. O., which is now owned and operated by the Southern Pacific, was recently reconstructed from a narrow to standard gauge at a cost of $4,000,000.



And Afterward

This line extends from the northerly terminus, Lakeview, Oregon, 155 miles south through Alturas to Wendel, Cal., where it connects with the Fernley branch, which extends 83 miles easterly to connection with the main line Overland Route at Fernley, Nev. The completion of the 96 miles of track between Klamath Falls and Alturas is, therefore, a connecting link, practically making a new transcontinental cut-off.

This new cut-off is shorter and affords grades and curves which are more favorable to traffic than the existing line via Roseville. The distance from Portland to Ogden, Utah, via Klamath Falls and Alturas, is 210.2 miles shorter than via the route through Dunsmuir and Roseville. Also this new route has 24,508 less degrees of curvature and 5168 less feet in grade rise than the route via Roseville.

The Southern Pacific Opened Another Door, and a Short-cut Across the Continent Last Month. Five Specials Carried the Crowd to the Celebration.

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The News of the Month

What's Been Going on in Transportation, Railroads, Automotive, Supply, Aviation

A BILL requiring railroads to use steel or steel underframe cars in passenger train service and forbidding the use of wooden cars under certain conditions was introduced by Representative Denison (Rep.), of Marion, Ill., Sept. 26. Mr. Denison is a member of the house committee on interstate and foreign commerce, to which the bill was referred.

His bill provides that after Jan. 1, 1932, it shall be unlawful for any common carrier by railroad to operate, or cause to be operated, any passenger train engaged in interstate commerce that is not of steel or steel underframe construction. It would make it unlawful, after 60 days from enactment of the proposed law, for any such railroad to haul in any passenger train, interstate, any wooden car between steel or steel underframe cars, or in front of a steel or steel underframe car.

It would provide a penalty of $100 for every such violation. It exempts from the proposed law passenger trains consisting of a locomotive and not to exceed three passenger cars operated exclusively upon branch lines or independent lines not over 50 miles long. It would also exempt passenger trains on narrow-gauge railroads and passenger trains or cars operated wholly on street, suburban or interurban electric railroads.

The bill would authorize the Interstate Commerce Commission to relieve a railroad from this prohibition against wooden cars upon a showing that the line operates the equipment under conditions where safety of passengers and employes is not endangered.

North to South Railway Proposed

The Wyoming-Montana Railway Co., an independent company incorporated in Wyoming, applied to the Interstate Commerce Commission, on Oct. 3, for authority to construct and operate a new north and south line of railroad in the States of Montana, Wyoming and Colorado.

The project proposes the construction of 561 miles of new line of railroad, the purchase of 41 miles of existing line, and joint trackage rights over 270 additional miles of line. It will involve $31,000,000 of new financing.

If proposed traffic relations with other railroads are consummated, together with other integral parts of the project, the result would be a north and south transcontinental line, extending from Hudson Bay, Canada, to the Pacific coast of Mexico, it was pointed out in the application.

The proposed new line would extend, the application states, from Miles City, Mont., to Craig, Colo., where connection would be made with the Denver & Salt Lake through the Moffat tunnel into Denver. Negotiations are said to be proceeding with the Santa Fe and Rock Island roads for traffic relations south at Denver.

The new line would intersect six east and west transcontinental lines, the Northern Pacific and the Milwaukee at Miles City; the Burlington and the North Western at Casper, Wyo.; the Burlington at Sheridan, Wyo.; the Union Pacific at Rawlins, Wyo.; and the Denver & Salt Lake at Craig, Colo.

Two Million Dollars in New Development

An eight story concrete and steel reinforced freight terminal and industrial building embracing more than 410,000 square feet of floor space and costing, including land, approximately $2,000,000, is to be erected on a plot of ground 100 feet wide by 453 feet long adjoining the tracks of the Erie Railroad at Ogden and Gouverneur streets, Newark, N. J. The building is to be constructed by a group of builders, engineers and other allied interests among whom are Richard Wilbur Tietjen, industrial engineer, New York; T. W. Cohill, construction development specialist of 45 West 45th street, New York, and A. D. Stark, consulting engineer of 45 West 45th street, New York, who are taking over from the Erie Land & Improvement Co. approximately 46,600 square feet of land for the development.

The G. N. Would Build in Montana

Making the most ambitious proposal yet put forward in the controversy between the Northern Pacific and Great Northern for development rights in east-central Montana, the Great Northern has asked permission to go forward with an $8,000,000 construction program.

More than 200 miles of new line would be laid, carrying the line from Richey, Mont., all the way to Lewistown and thus completing the secondary cross-state line which James J. Hill planned for this section of the state 20 years ago. Application for permission to build the extension has been made to the Interstate Commerce Commission.

The Great Northern route would be from 25 to 30 miles north of the Northern Pacific's Glendive branch. The Great Northern says there is room for both roads to build into the territory, now wholly without rail facilities. The Northern Pacific takes the position that only one line can profitably be built into the district and that it should be given the extension privilege instead of the Great Northern. The Northern Pacific has asked for permission to build from Brockway to Jordan. Before proposing its extension all the way to Lewistown the Great Northern had asked to build from Richey to Jordan.

Air Week in Mexico

An air week under the auspices of the Mexican Association of Aeronautics, will be observed for educational purposes November 12-18. Exhibits of Mexican civil and military aeronautic activities will be prominent attractions. American manufacturers of airplanes and aeronautic products will be invited to take part and the arrangements will include numerous facilities for exhibitors.

This Boy Came From Logansport

Word comes from Ottawa that Premier King has said publicly that terms of a new contract for the services of Sir Henry Thornton as president of the Canadian National Railways, government-owned system, have been arranged. This will go into effect on the expiration of the present contract.

It is rumored that the new contract provides for a salary of $75,000, plus $10,000 for expenses. Heretofore, Sir Henry's salary has been $65,000 a year plus $10,000 for expenses.

Up Goes the Net

Class I railroads for the first seven months this year had a net railway operating income of $685,508,192, which was 5.57 per cent on property investment, according to reports just filed by the carriers with the Bureau of Railway Economics. In the first seven months of 1928, their net railway operating income was $557,646,004 or 4.60 per cent

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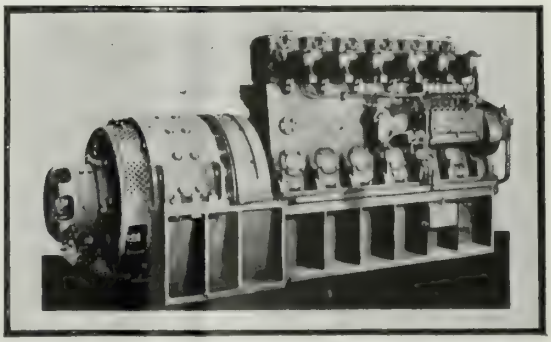

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on their property investment. This compilation is based on reports from 182 Class I railroads, representing a total mileage of 239,529 miles. Gross operating revenues were $3,621,824,472 compared with $3,426,180,240 for the same period last year, or an increase of 5.7 per cent. Operating expenses were $2,635,807,627, compared with $2,585,599,838 for the same period one year ago, an increase of 1.9 per cent. Class I railroads in the first seven months of 1929 paid $232,510,721 in taxes, compared with $215,505,500 for the same period the year before. For July alone, the tax bill of the Class I railroads amounted to $35,661,914, an increase of $2,928,889 over the previous year. Sixteen Class I railroads operated at a loss in the first seven months of 1929, of which five were in the eastern, two in the southern and nine in the western district.

Uniform Bus Code Approved

Of particular interest to bus operators and manufacturers is the news that the National Association of Railroad and Public Utility Commissioners has unanimously approved and adopted the provisions of the Uniform Motor Bus Specifications Code. The real significance of this is that the code, on which so much time and effort has been expended during the past three years, has been adopted by the one organization that can really make it vigorous and effective in standardizing regulated bus specifications. This approval now brings the Uniform Motor Bus Specifications Code clearly and definitely to the attention of every public utility commissioner as a project approved by similar officials. Changes in the code necessitated by new development will be made yearly by the joint committee which effected the final revision of which Dow W. Perkins is secretary, with headquarters at 25 Broadway, New York.

Loadings Still Increasing

Loading of revenue freight for the week ended September 21 totaled 1,166,330, the car service division of the American Railway Association reported Oct. 2. This was an increase of 22,199 cars over the same week last year and an increase of 39,982 cars over the same week two years ago. It also was an increase of 13,268 cars over the preceding week this year, increases being reported in the loading of all commodities except grain and grain products, forest products and ore. Grain and grain products loading for the week totaled 51,750 cars, a reduction of 8,513 cars under the corresponding week last year and 8,529 cars under the same period in 1927. In the western districts alone, grain and grain products loading amounted to 37,076 cars, a reduction of 9,578 cars under the same week in 1928. Miscellaneous freight loading for the week totaled 471,984 cars, 11,681 cars above the same week last year and 24,441 cars over the corresponding week

Dow W. Perkins
Mack-Internat'l Motor Truck Corpn.

two years ago. Livestock loading totaled 32,125 cars, 4,720 cars below the same week last year and 474 cars under the corresponding week in 1927. In the western districts alone, livestock loading amounted to 25,259 cars, a decrease of 3,986 cars compared with the same week in 1928. Loading of merchandise less than carload lot freight amounted to 271,344 cars, an increase of 4,686 cars above the same week in 1928 and 2,308 cars over the same week two years ago.

By Signal Direction Alone

Through the development of improved methods of signaling, 41 railroads of the United States and Canada now direct the movements of trains by means of signals and without the use of train orders over parts of their lines where there is heavy traffic movement and more than ordinary demands upon track capacity, according to a report submitted by the committee on economics of railway signaling at the semi-annual convention of the signal section of the American Railway Association in its meeting in Atlanta.

As a result of the installations on the 41 railroads, the report estimated that the trains whose movements are directed entirely by signals are making nearly 32,000,000 train miles a year, nearly one and one-half times the total freight train mileage in the New England region. On about 10 per cent of the total train mileage so operated, signals are instantaneously transmitted to the engineer and fireman by means of mechanisms that automatically record each signal in the locomotive cab and directly in front of each man.

"In the past two years," according to the report, "a greatly improved system of train operation by signal indication has been developed. The new system simplifies the work of the train dispatcher and enables him to increase substantially the output of transportation, especially on single track lines.

"Under this new system, the signals and switches are operated and controlled from a centrally located point by dispatchers solely by the use of electrically operated signaling devices. By direct operation of switches as well as the signals, the train dispatcher sets up the routes as required by each individual train. Through the elimination of the task of issuing written train orders, the dispatcher can concentrate all of his efforts on keeping trains moving with minimum delay and thus assure maximum utilization of trackage and equipment together with greatly reduced accident hazard."

The signal section will meet next year at Hot Springs, Ark.

But Will It Pay?

The Great Northern Railway has begun building its own ore cars in its shops at Superior, Wis., instead of buying them in the East. Production has been started on the first order of 300 cars, to cost about $2,000 each. These are to be finished by early next spring. If the plan works out satisfactorily it is expected that about the same number will be built every year.

Must Pay Moffat Tunnel Rent

Judge J. Foster Symes in the federal district court at Denver ruled September 20 that the lease made by the Moffat tunnel commission with the Denver & Salt Lake is binding insofar as the amount of rental is concerned, but the clause giving the road a monopoly is denied.

The railroad is bound by the decision to pay the rent provided for in the contract for the full term of the lease, 99 years; the illegality of a municipal contract may be raised at any time; denies the railroad's plea of *estoppal;* denies that part of the contract which gives the Denver & Salt Lake a monopolistic right to the tunnel; restores to the commission its right under the Moffat tunnel act to contract with other railroads for the use of the tunnel up to its capacity.

The court rules that February 14, 1928, was the date the railroad took over the tunnel, and that rental based

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upon the contract must be paid from that date onward. Both sides are said to be preparing appeals from this decision.

Chinese Railroad Man Visits Denver

Dr. Ching-Chun Wang, graduate of Yale, former president of the Chinese Eastern and now engaged as an instructor to young Chinamen, teaching them the fundamentals of the railroad business, addressed the University Club of Denver, Sept. 26, on "Russo-Chinese Conflict." The Chinese Eastern, he said, is 1,100 miles long, single track, five foot gauge. Buses have entered into competition with the railroad, but there is enough business for both.

Citizens Want New Railroad

A petition being circulated, asking the Interstate Commerce Commission to grant Hugh Lee Kirby, president of the Wyoming-Montana, permission to build the new railroad from Craig, Colo., via Casper, Wyo., to Miles City, Mont., is being freely signed by the citizens along the route. This work would take up and complete, with an extension, the work started by the Wyoming North & South, which was stopped because of financial stringency.

Mohammed and the Mountain

The Missouri Pacific, in improving its line between Kansas City and Pueblo, finds it necessary to move the roadbed fully three miles from the town of Hallville, Kansas. There was no complaint on the part of the townspeople. Realizing the moving of the track was necessary it has been decided to move the town over to the tracks.

Freight Volume Grows; No Car Shortage

Class I railroads handled without car shortage or other transportation difficulty, the greatest volume of freight in the first seven months this year ever offered to them in any corresponding period, says the Bureau of Railway Economics. Freight traffic for the first seven months totaled 280,439,978,000 net ton miles, an increase of 8,066,690,000 net ton miles, or three per cent over the previous high record for any corresponding period, established in the first seven months of 1927. It also was an increase of 17,296,229,000 net ton miles or 6.6 per cent above the same period in 1928.

In the eastern district for the first seven months this year railroads reported an increase of 8.6 per cent in the volume of freight traffic handled, compared with the same period in 1928, while the southern district reported an increase of 1.2 per cent. The western district reported an increase of 5.8 per cent.

Freight traffic in July amounted to 41,991,315,000 net ton miles, an increase of 2,838,387,000 net ton miles or 7.2 per cent over the same month last year. It also was an increase of 3,622,054,000 net ton miles or 9.4 per cent above that for July, 1927.

In the eastern district, there was an increase in the volume of freight handled of 8.3 per cent in July, 1929, compared with the same month in 1928, while the southern district reported a reduction of 1.4 per cent. The western district reported an increase of 8.7 per cent.

Big Order For Rails

The Union Pacific gave an order September 15 for 48,000 tons of steel rails and 15,000 tons of fittings, all to be used this year. The cost will be around $3,000,000. The business was divided among the United States Corpn., Inland Steel Co. and the Colorado Fuel & Iron Co.

Oil-Electric Test in Canada

Pulling nine cars, the new Canadian National Railways oil-electric locomotive left Bonaventure Station, Montreal, recently on a demonstration run to Toronto. The engine, the largest of its kind in the world, averaged more than 55 miles an hour over the 324-mile run and attained a speed as high as 75 miles an hour during the trip. A number of railroad officials, engineers and newspaper representatives made the trip.

The total over-all length of the locomotive is 94 feet, has 16 driving wheels and 12 truck wheels. The electrical system of transmission utilizes full engine horsepower over a wide range of speed and tractive effort of the locomotive, without change of engine speed or shifting of gears.

Millions for Steel Rails

The Pennsylvania Railroad has just announced purchases of 310,000 tons of rails for use in 1930, the largest order given in railroad history. The rails, with fastenings, will cost about $21,000,000. The company's rail orders for 1928, 1929 and 1930 will total almost 900,000 tons, the largest consecutive purchases ever made. The rails to be bought in 1930 would build an entirely new single track between New York and St. Louis, with enough remaining to build two tracks between New York and Washington. The road uses 130-pound rail on its Blue Ribbon mileages. In the ten years to end with 1929, the company has spent about $53,000,000 for 1,877,500 tons of rail.

Average Speed a Record

The average speed of freight trains in July this year, according to reports for the month filed by the Class I railroads, was 13.4 miles an hour, the highest average ever reached in any July on record, and an increase of three-tenths of one mile above that for July, last year. This average, however, was the same as that for June, this year. The daily average movement per freight car in July was 32.1 miles, which exceeds the previous high average for any July on record, having been 1.8 miles greater than that for July, 1928, and three miles greater than that for July, 1927. The average load per car in July, this year, was 27.3 tons, including less than carload lot freight as well as carload freight. This was an increase of seven-tenths of a ton above that for July, 1928, and three-tenths of a ton above that for July, 1927.

Railway Construction

Tracks & Yards

INDIANA.—The New York, Chicago & St. Louis has let a contract to the Hecker-Moon Co., Cleveland, for track laying on the second main track being built between Montmorenci and Templeton, 10 miles. The Industrial Construction Co., St. Louis, has a contract for bridge work on this track. The cost of the work in the first contract is $36,700 and that in the second, $52,300.

ILLINOIS.—A contract has been let to Roberts Bros., Chicago, for grading on the construction of a third main track between Des Plaines and Barrington, 15 miles. Peppard & Burrill, Minneapolis, has a contract for the extension of bridges on this track, while track laying and ballasting will be done by company forces. The estimated cost of the work is $1,400,000.

KENTUCKY.—The Cincinnati, New Orleans & Texas Pacific, a subsidiary of the Southern, has let a contract to the Bates & Rogers Construction Co., Chicago, for second main track between Blanchet and Sadieville, 9 miles.

MICHIGAN. — The Grand Trunk Western has announced plans to electrify the 26-mile main line between Detroit and Pontiac. Included in the plan is the construction of an automobile

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speedway between Jefferson ave. and Pontiac to be supported on the columns carrying the overhead wires. The proposed construction is subject to the approval of the Michigan Public Utilities Commission.

NEW YORK.—The Public Service Commission has ordered the elimination of the Watkins-Yates county line state highway crossing, 200 feet south of the Reading center station of the New York Central at Reading. The grade of the highway is to be depressed on a new alignment and carried under the grade of the railroad. The railroad company will design and erect the substructure and superstructure for the underpass and the remainder of the work will be done by the department of public works. The estimated cost is $140,950.

NEW MEXICO.—The Roswell & Corpus Christi Holding Co. has been organized in Texas, with headquarters at Houston, to construct a 600-mile railroad between Roswell and Corpus Christi, Texas. There are two routes under consideration. One would cross the Texas & Pacific at Odessa, Tex., the Orient at Sonora, and the Southern Pacific at Pearsall. The other route would cross the Texas & Pacific at Midland, Tex., and the Southern Pacific at Hondo.

TEXAS.—The Texas & Pacific has let a contract to Gifford-Hill & Co., Dallas, for grading for a locomotive terminal here. It is planned to build an enginehouse and other terminal buildings here.

—See New Mexico.

Buildings and Structures

COLORADO.—Denver. The Colorado & Southern has let a contract to the Roberts & Schaefer Co. for a reinforced concrete Rands gravity sand plant for the terminal here.

ILLINOIS.—Blue Island. The T. S. Leake Construction Co., Chicago, has a contract from the Rock Island for a yard office and an interlocking tower here.

—Galesburg. The Santa Fe is planning, it is reported, the immediate construction of new stock yards here.

—Galesburg. The Burlington has approved plans for a $5,000,000 freight terminal here with a track capacity of 10,000 cars, to be finished in three years. The yard is to consist of three units, with 49 eastbound and 49 westbound classification tracks.

IOWA.—Des Moines. The Rock Island has let a contract to Arthur H. Neumann & Co., Des Moines, for a $60,000 addition to the enginehouse here.

KANSAS. — Topeka. George Senna Construction Co., Topeka, has a contract from the Santa Fe for the new hospital here.

KENTUCKY. — Maysville. Boxley Bros. Co., Inc., has a contract from the Chesapeake & Ohio for rebuilding a bridge here to cost about $174,600.

LOUISIANA.—New Orleans. Plans for the Illinois Central passenger terminal here have been approved by the Louisiana Public Service Commission.

MICHIGAN. — Clarendon. Fairbanks, Morse & Co., Chicago, has a contract from the Michigan Central for a $38,000 coaling station here.

—Detroit. The Grand Trunk Western plans to build a combined passenger station and office building on Jefferson ave. between Dequindre and Orleans streets.

—Niles. The Michigan Central has let a contract to the Dominion Construction Co. for the reconstruction of three steel bridges here to cost about $80,000.

—West Detroit. The Michigan Central has let a contract to Fairbanks, Morse & Co., Chicago, for a $100,000 coaling station here.

MISSOURI.—St. Louis. The Missouri Pacific and the Terminal Railroad Assn. has let a contract to Fruin-Colnon Contracting Co., St. Louis, for a commissary building on Scott avenue. The building is to cost about $20,000.

NEBRASKA.—Omaha. V. R. Gould, Omaha, has a contract from the Burlington for the rearrangement and construction of an addition to the passenger station here. The estimated cost is $700,000.

NEW YORK—Princetown. Plans submitted by the Delaware & Hudson for eliminating three grade crossings here have been approved by the Public Service Commission of New York.

PENNSYLVANIA. — Dunmore. The Erie has let a contract to the Roberts & Schaefer Co. for a 500-ton sand drying and storage plant, an "N. & W." type electric direct engine coaler, and an "N. & W." type cinder plant at its terminal here.

TEXAS.—Galveston. E. A. Whitney & Son, Kansas City, has a contract from the Galveston Wharf Co. for the construction of a foundation for a grain elevator here and for the driving of 425,000 lin. ft. of piles.

Locomotive Orders

According to reports filed with the A. R. A., locomotives in need of repair on the Class I railroads, September 15, totaled 7,754 or 13.6 per cent of the number on line, 7.4 per cent in need of classified repairs and 6.2 per cent in need of running repairs. This was an increase of 648 compared with the number on September 1 when there were 7,106, the lowest number in need of repair at any time in recent years. Serviceable locomotives in storage, September 15, totaled 4,824 compared with 4,947 on September 1.

The Akron & Barberton Belt is inquiring for three switchers; Lackawanna, two oil-electric; Kentucky & Indiana Terminal, eight switchers; Pacific Railway of Nicaragua (through J. G. White Engineering Co.) two 2-8-0 type. The New York Central will purchase 25 Mohawk and 10 Hudson type locomotives, and the Burlington, eight Mikados and five large passenger locomotives. It is reported the International Railways of Central America will enter the market for five locomotives; Kansas City Terminal Railway, for a number of switchers, and the Richmond, Fredericksburg & Potomac for several 4-8-4 type locomotives.

The Buffalo General Electric Co. has ordered one oil-electric from the American Locomotive, General Electric and Ingersoll-Rand companies; Chilean Exploration Co., three electric from Westinghouse Electric & Mfg. Co.; Coos Bay Lumber Co., two 2-8-2 type from American; Great Northern, 14 high-speed passenger locomotives from Baldwin; and four electric locomotives from General Electric Co.; Charles McCormick & Co., San Francisco, one 2-8-2 type from Baldwin; New York Central, 42 electric from American with General Electric electrical equipment. The Great Northern is also building six Mallets in its own shops.

Passenger Car Orders

Orders for passenger cars placed since the September issue of Transportation include the following: Canadian National, one passenger and baggage rail motor car with J. G. Brill Co.; Erie, four gas-electric rail motor cars with Standard Steel Car Co.; Board of Transportation, New York City, 300 steel passenger cars for subway service with American Car & Fdy. Co.; Cleveland Railway, 100 city street cars with the J. G. Brill Co. The motors for the last two items are to be supplied by Westinghouse. The Santa Fe ordered 10 chair, 10 coach smoking, five dining, two cafe observation, 19 mail and baggage, three mail and smoking cars and two gas-electric rail motor cars from Pullman Car & Mfg. Corpn.

The Delaware & Hudson is inquiring for two combination mail and baggage cars; Denver & Rio Grande Western, two combination mail and baggage cars or two baggage cars; Pennsylvania, five passenger, smoking and baggage gas-electric rail motor car bodies; Reading, two passenger trailers; St. Louis-Southwestern, ten baggage cars and five baggage and mail cars; Tientsin Pukow of

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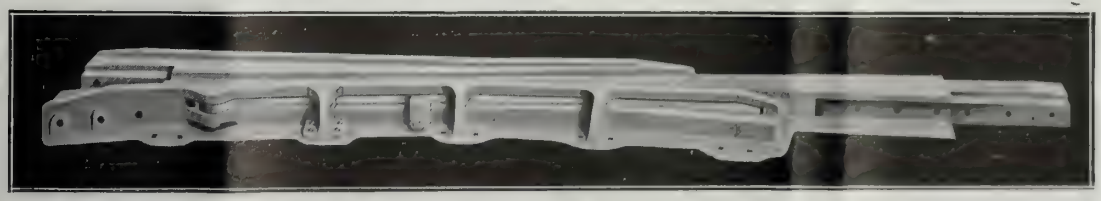

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China, 67 underframes and 134 trucks for passenger cars. It is reported that the Burlington will purchase 10 baggage, 14 suburban and 10 gas-electric cars; New York Central, 20 baggage, 10 combination passenger and baggage and 30 milk cars; and the Baltimore & Ohio, 50 steel coaches. The International Railways of Central America is expected to come into the market for seven first-class coaches, 15 second-class coaches and three baggage cars.

Freight Car Orders

According to reports filed by the carriers with the car service division of the A.R.A., Class I railroads had 136,371 freight cars in need of repair on September 15, or 6.1 per cent of the number on line, 4.4 per cent in need of heavy repairs and 1.7 per cent in need of light repairs. This was an increase of 2,118 cars above the number reported September 1, at which time there were 134,253 or six per cent.

The railroads on September 1 had 31,898 freight cars on order. This was an increase of 22,641 cars above the number on September 1 last year and an increase of 13,134 cars above the same day two years ago. Several large orders have been placed since the last issue of Transportation and a number of large inquiries, it is reported, will be made shortly. The Baltimore & Ohio is expected to purchase 5500 hopper, gondola and box cars; Burlington, 500 automobile, 600 flat and 800 hopper cars, also 700 box and 100 flat cars for the Colorado & Southern; Illinois Central, 2000 cars; Louisville & Nashville, 3000 cars; International Railways of Central America, 75 stock, 50 box and 50 flat cars. The New York Central will order 1500 box cars, 1540 gondolas, 700 automobile, 500 hopper and 100 flat cars. The St. Louis-Southwestern is inquiring for 2500 box cars, 800 gondolas and 500 automobile cars; and the North Western, it is reported, may buy 2000 box cars. The Chesapeake & Ohio, Virginian Railway and Great Northern are also expected to come into the market. As these inquiries probably will be filled this fall, the outlook for the remainder of the year is very encouraging.

The Santa Fe ordered 5,754 cars divided as follows: 1500 box and 500 refrigerator cars from Pullman Car & Mfg. Corpn.; 500 box, 300 gondolas, 150 flat cars and 104 cabooses from American Car & Fdy. Co.; 1000 box cars from General American Tank Car Corpn.; 500 box and 500 automobile cars from Pressed Steel Car Co.; 300 stock cars from Pennsylvania Car Co.; 200 gondolas from Standard Steel Car Co.; 200 ballast cars from Rodger Ballast Car Co. The Southern Railway ordered 1500 hopper cars from Pressed Steel Car Co., and 3500 automobile cars from American Car & Fdy. Co.; Baltimore & Ohio, 2000 gondolas divided between Standard Steel Car Co. and Bethlehem Steel Co.; Boston & Maine, 1000 box cars and 500 hopper cars from Standard Steel Car Co.; Norfolk & Western, 1000 hopper cars from Ralston Steel Car Co., 1000 hopper cars from Bethlehem Steel Co., rebuilding of 1000 hopper cars from Virginia Bridge & Iron Co.; Central of Georgia, 500 gondolas and 50 flat cars from Pullman Car & Mfg. Corpn.; Chicago & Eastern Illinois, 500 gondolas from Mt. Vernon Car Mfg. Co.; Milwaukee, 500 gondolas from Pressed Steel Car Co., and 500 gondolas from Bettendorf Co.; Bessemer & Lake Erie, 25 gondolas from Greenville Steel Car Co.; E. I. du Pont de Nemours & Co., 49 tank cars from General American Tank Car Corpn.; Safety Car Heating & Lighting Co., 50 refrigerator cars from Pullman Car & Mfg. Corpn.; Winston Brothers Co., Minneapolis, 150 air dump cars from Western Wheeled Scraper Co.; Nashville, Chattanooga & St. Louis, 450 center sills from Pullman Car & Mfg. Corpn.; Chicago & North Western, 500 flat cars from American Car & Fdy

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To protect their employes and also their maintenance costs? With Hasco you avoid damage claims due to tangled, bent or missing Tell-tales and accidents and expense in making replacements. The Hangers are made of bronze and the Tell-tales of brass rods and solid treated braided rope making replacement seldom necessary. When it is necessary, however, one man with the Hasco replacer and pole can do the job from the ground. They are standard on leading railroads—also our side clearance warnings. Write for details to the

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HASCO METHOD

Co. The Great Northern has started to build 300 ore cars at its Superior shops and the Wabash will build 100 hopper car bodies for the Ann Arbor at its own shops. It is reported that the Seaboard Air Line has ordered 465 box car bodies from Standard Steel Car Co. The Koppel Industrial Car & Equipment Co. received the following orders for air dump cars: Butler Bros., 10; L. G. Everist, 1; A. Guthrie & Co., 10; H. W. Kaylor, 4; Northern Illinois Coal Corpn., 4; Pittsburgh & Lake Erie, 8; Wagner Quarries Co., 2; Youngstown Sheet & Tube Co., 4.

The Santa Fe will also order 100 tank cars, and, it is reported, will buy an additional 1000 cars. The Boston & Albany is inquiring for 300 gondola car bodies; Republic Iron & Steel Co., 42 gondola car bodies; South African Railways, 150 freight cars; United Fruit Co., 75 fruit cars.

Changes in Personnel

Executive & Operating

Louis W. Hill, chairman of the board of the Great Northern, resigned October 10 and the position, held by Mr. Hill since 1912, was abolished. He began his career with the Great Northern upon his graduation from Yale in 1893, starting as a billing clerk. Mr. Hill announced that he will spend his time traveling, hunting, fishing, collecting pictures, and writing an intimate biography of his father, the late James J. Hill.

W. H. Kelly has been appointed superintendent of the St. Louis Terminals of the Burlington to succeed **N. H. Young,** retired.

The New Haven announces that **C. E. Smith,** vice president at New Haven, has been placed in charge of the department of purchases and stores, succeeding **N. M. Rice,** deceased. He will continue in his former capacity also.

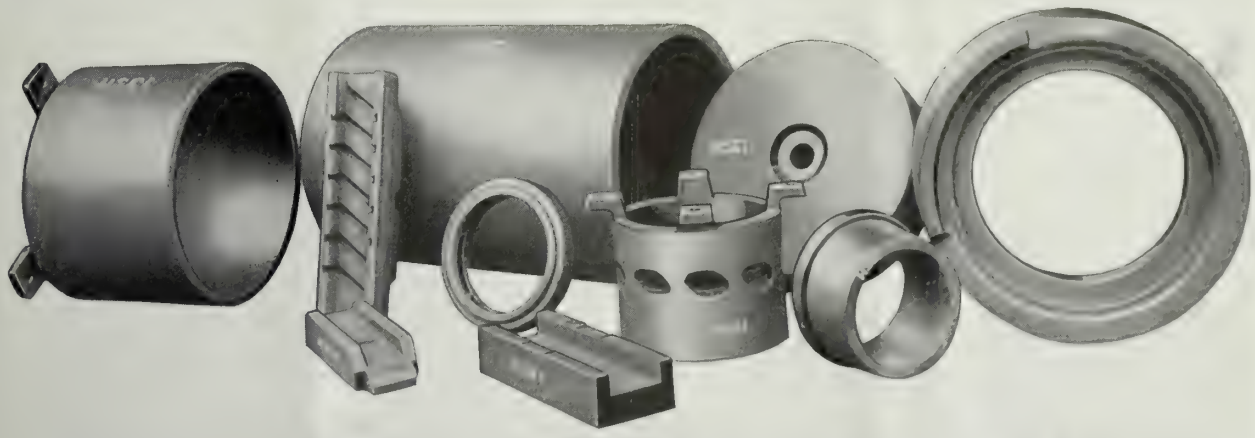
L. L. White, assistant general manager of the western district of the Erie, with headquarters at Youngstown, O., has been appointed assistant to the president, with headquarters at New York, to succeed **Robert J. Bowman,** promoted.

Charles Elsey, vice president in charge of finance of the Western Pacific, has been elected executive vice president, a newly created position, with headquarters as before in San Francisco. Mr. Elsey has been with the Western Pacific for 22 years.

Everett E. Adams and **Jesse L. Haugh** have been appointed vice presidents of the Union Pacific System, in addition to which each will retain the title of assistant to the president. Mr. Adams, who is in charge of purchases, engineering and standards, and Mr. Haugh have headquarters at Omaha.

The Louisville & Nashville announces that **H. P. Hearon** has been appointed assistant superintendent of the Pensacola, the Pensacola & Atlantic, and the Southern Alabama divisions, with headquarters at Pensacola.

Colonel N. L. Howard, president of the Chicago Great Western for the last



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N. L. Howard

four years, resigned October 7 because of ill health. He was succeeded by **V. V. Boatner**, president of the Peoria & Pekin Union. **S. M. Felton**, for many years president and later chairman of the executive committee, also resigned from active duty, but will remain as chairman of the board. He has been succeeded as executive head by **Bernard E. Sunny**, chairman of the Illinois Bell Telephone Co.

The new president of the Great Western, Mr. Boatner, is 48 years old and has been a railroad man for 28 years. He entered the service of the Illinois Central in 1901 as a station helper at Elizabeth, Miss. He worked up through the ranks until he became superintendent of the New Orleans division in 1916. He was elected president of the Peoria, Pekin road in 1921.

Robert J. Bowman has resigned as assistant vice president of the Erie and has been elected vice president in charge of the operating department of the Pere Marquette to succeed **Frank H. Alfred**, retired. Mr. Alfred, who had been president of the Pere Marquette, became operating vice president of the road when J. J. Bernet, chief operating officer of the Van Sweringen organization, took over the presidency of the Chesapeake & Ohio and the Hocking Valley. Mr. Bowman held his first railroad job with the old Nickel Plate as freight clerk at Mortimer, O. in 1907, and was soon promoted to agent and operator and, later, relief operator. He went to the superintendent's office at Fort Wayne in 1914, remaining there four years until he was transferred to the general offices in Cleveland. When Mr. Bernet became president of the Nickel Plate Mr. Bowman was attached to his office, and when he began the reorganization of the Erie Mr. Bowman was at first one of his chief assistants and later was promoted to assistant vice president.

The Milwaukee announces that **M. T. Skewes**, assistant superintendent at

Robert J. Bowman

Minneapolis, has been appointed division superintendent to succeed **L. T. Johnston**, deceased.

H. H. Sparling, chief train dispatcher

JORDAN SPREADER
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SNOW PLOW ★ ICE CUTTER ★ DITCHER
UNIVERSALLY STANDARD
O. F. JORDAN COMPANY
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of the Port Arthur division of the Canadian National at Port Arthur, has been appointed superintendent of transportation of the Manitoba district with headquarters at Winnipeg. Mr. Sparling succeeds **M. Helston,** who has been appointed rule inspector and inspector of train dispatching offices for the Manitoba and Saskatchewan districts.

William White, superintendent of the Mahoning division of the Erie, with headquarters at Youngstown, O., has been appointed assistant general manager of the western district. He will be succeeded by **R. H. Boykin,** superintendent of the New York terminal division, with headquarters at Jersey City. **Raymond C. Randall,** assistant superintendent, with headquarters at Jersey City, has been named to succeed Mr. Boykin on the New York terminal division. **E. J. Stubbs** has been named to succeed Mr. Randall.

Financial & Legal

C. B. Friend, assistant auditor of disbursements of the Southern Pacific, has been appointed auditor of capital expenditures, with headquarters at San Francisco. **H. C. McCleer** has been appointed auditor of miscellaneous accounts at San Francisco.

Alexander Taylor, secretary of the Algoma Eastern, with headquarters at Montreal, has been appointed also secretary of the Algoma Central & Hudson Bay.

The White Pass & Yukon Route announces these appointments: **C. J. Rogers,** purchasing agent, with headquarters at Seattle, has been appointed controller also. **A. C. Blanchard** has been named general auditor with headquarters at Skagway, Alaska, to succeed **G. H. Miller,** retired.

John A. Chambliss, chairman of the board of the Tennessee, Alabama & Georgia, with headquarters at Chattanooga, has been elected treasurer also.

Traffic

Walter S. Yeatts, assistant to the traffic manager of the Pennsylvania at Philadelphia, has been appointed assistant freight traffic manager there. **W. L. Buchanan,** milk agent in the territory east of Altoona, south of New York and north of Washington, has been appointed milk traffic agent at Philadelphia, with supervision over the milk and cream traffic of the system.

James B. Duffy, general passenger agent for the Santa Fe, with headquarters at Los Angeles, has been appointed assistant passenger traffic manager, with headquarters as before. **J. M. Connell,** general passenger agent at Topeka, has been appointed assistant passenger traffic manager there. **B. M. Bukey,** assistant general passenger agent, has been promoted to assistant passenger traffic manager, with headquarters as before at Chicago. **E. J. Shakeshaft,** assistant general passenger agent at Topeka, has been appointed general passenger agent there to succeed Mr. Connell.

W. D. McVey, general freight and passenger agent of the Rutland, with headquarters at Rutland, Vt., has been named assistant freight traffic manager of the New York Central lines west of Buffalo, and the Ohio Central lines, with headquarters at Chicago. Mr. McVey will be succeeded at Rutland by **Samuel W. Carder,** assistant general freight agent of the Michigan Central, with headquarters at Buffalo.

C. V. Gallagher, assistant general freight agent of the Soo Line, has been appointed assistant freight traffic manager with headquarters as before at Chicago.

C. E. Norris, general agent of the Chicago & Alton, has been appointed executive general agent with headquarters as before at Kansas City.

L. A. Robison, passenger traffic manager of the New York Central with headquarters at New York, has retired because of illness after 47 years of service. **Harry Parry,** assistant passenger

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We make these Chemicals for you-based on an analysis of water used in your boilers.

This is a Briquette—weighs one pound and has a minimum of moisture. Doesn't it appeal to you over the usual run of compounds?

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BUENOS AIRES MANILA AUSTRALIA

traffic manager, has been appointed to succeed him. **A. E. Brainard,** general passenger agent, has been appointed assistant passenger traffic manager at New York. **Neil Mooney,** assistant general passenger agent, New York, has been named to succeed Mr. Brainard.

E. E. Wade, assistant to the passenger traffic manager of the Southern Pacific, with headquarters at San Francisco, has been granted leave of absence pending retirement. Mr. Wade began his service with the railroad in 1882.

B. R. Harris, general agent of the freight department of the Chicago Great Western with headquarters at Minneapolis, has been appointed assistant general freight agent, with headquarters at Chicago to succeed **G. R. MacLean,** resigned. **W. E. Semmer,** coal traffic agent at Chicago, has been appointed to succeed Mr. Harris at Minneapolis.

John Davidson, manager for 14 years of Montreal's Windsor Hotel, has been appointed convention traffic agent of the Canadian Pacific.

W. C. Hetzler has been appointed general freight agent of the Tennessee, Alabama & Georgia, with headquarters at Chattanooga.

W. K. Adams, assistant general passenger agent of the Minneapolis & St. Louis, has been appointed general passenger agent in charge of passenger rates and solicitation, with headquarters as before at Minneapolis. **J. R. Shannon,** general freight and passenger agent, with headquarters at Minneapolis, has been appointed general freight agent in charge of freight solicitation. The position of general freight and passenger agent has been abolished.

A. J. Cronin, assistant general freight agent of the Denver & Rio Grande Western, with headquarters at Salt Lake City, has been appointed assistant traffic manager, with headquarters at Salt Lake, and with jurisdiction over the Utah lines of the railroad. Mr. Cronin succeeds **J. D. Stack,** who was transferred to Los Angeles to succeed **E. S. Blair,** general agent at Los Angeles, retired.

Mechanical

Charles Emerson, master mechanic on the Northern Pacific at Dilworth, Minn., has been appointed acting master mechanic, Tacoma division, with headquarters at Tacoma, to succeed **James Bruce,** granted leave of absence because of illness. **Luke J. Gallagher,** assistant master mechanic at Staples, Minn., has been appointed to succeed Mr. Emerson. **Norbert E. Entrikin** has been appointed assistant master mechanic, Fargo division, with headquarters at Staples, to succeed Mr. Gallagher.

F. W. Schultz, mechanical superintendent of the Orient, has been appointed superintendent of shops of the Santa Fe, with headquarters at Wichita.

G. G. Lynch, assistant mechanical engineer of the Atlantic Coast Line, has been appointed mechanical engineer of equipment with headquarters as before at Wilmington.

The Seaboard Air Line announces these changes: The positions of chief of motive power and equipment and assistant to the chief of motive power and equipment have been abolished. **C. S. Patton,** superintendent of motive power of the northern district, has been appointed to the newly created position of general superintendent of motive power, with headquarters as before at Savannah. **F. P. Pfahler,** assistant to the chief of motive power and equipment, with headquarters at Savannah, has been appointed to the newly created position of assistant to the general superintendent of motive power with the same headquarters. **E. H. Roy,** master mechanic of the South Carolina division, has been appointed superintendent of motive power of the northern district, with headquarters as before at Savannah, to succeed **C. S. Patton. F. A. Weatherford,** general foreman of the

MORE WORLDS TO CONQUER

More worlds to conquer was the cry of Alexander the Great; but the quest of the West today is for more markets and for more mouths to fill.

By creating fast and efficient service the railway has enabled the perishables producers of the Pacific Coast to take advantage of markets thousands of miles distant. Not only has Southern Pacific rendered this service to the grower, but the company has been continuously, resourcefully and intelligently at work for the upbuilding of the Pacific Coast and the widening of home markets.

More than half of all Southern Pacific advertising expenditures, totalling about $1,300,000 annually, are directly aimed at the attraction of visitors and home-seekers to regions served by the company's lines.

Since 1916 the company has brought nearly four million visitors to the West, thousands of them remaining as permanent residents and adding materially to the Pacific Coast consumption of Pacific Coast products.

No matter what you do, grow, sell or create, the railroad is extending your markets by attracting new industries and settlers.

SOUTHERN PACIFIC

locomotive department, has been appointed master mechanic of the South Carolina division to succeed Mr. Roy.

C. B. Keiser, superintendent of motive power of the Pennsylvania, eastern Pennsylvania division, with headquarters at Harrisburg, has been appointed assistant to the general superintendent of motive power, New York zone. **M. R. Reed,** superintendent of motive power, northern division, with headquarters at Buffalo, has been named to succeed Mr. Keiser. **H. H. Haupt,** superintendent of motive power, northwestern division, with headquarters at Chicago, has been appointed to succeed Mr. Reed. **J. A. Sheedy,** master mechanic at Wilmington, has been appointed superintendent of motive power of the northwestern division.

Floyd R. Mays, general superintendent of the Yazoo & Mississippi Valley at Memphis, has been appointed general superintendent of motive power of the Illinois Central, with headquarters in Chicago. **E. D. Holcomb,** general superintendent of the northern lines of the Yazoo & Mississippi Valley, at Champaign, has been named to succeed Mr. Mayes at Memphis. **J. L. Downs** has been named to succeed Mr. Holcomb at Champaign.

Civil

J. F. Murray, assistant chief engineer of the Pennsylvania, with headquarters at Philadelphia, has been appointed engineer of Baltimore improvements.

The Baltimore & Ohio announces these appointments: **H. H. Harsh,** division engineer at Pittsburgh of the Pittsburgh division, has been appointed division engineer of the Akron division with headquarters at Akron. **G. B. Farlow,** division engineer of the Monongah division, with headquarters at Grafton, W. Va., has been named to succeed Mr. Harsh at Pittsburgh. **John Edwards,** assistant engineer maintenance of way and structures at Pittsburgh, has been appointed to succeed Mr. Farlow at Grafton. **H. N. Anderson,** assistant division engineer at Pittsburgh, has been named to succeed Mr. Edwards as assistant engineer of maintenance of way at Pittsburgh. **J. G. Collinson,** supervisor of road at Meyersdale, Pa., has been named assistant division engineer of the Pittsburgh division to succeed Mr. Anderson.

T. P. Brewster, telegraph and telephone supervisor of the Santa Fe, with headquarters at Los Angeles, has been appointed assistant superintendent of telegraph of the Santa Fe-Western Union, jointly. Mr. Brewster succeeds **W. C. Bassett,** who is retiring after 43 years of service.

R. D. Copeland, assistant engineer maintenance of way of the Ann Arbor, with headquarters at Owosso, Mich., has been appointed engineer maintenance of way at that point.

C. W. Suesse, supervisor of telegraph and signals, Cincinnati division of the Pennsylvania, has been appointed acting signal inspector, office of superintendent telegraph and signals, Chicago, to succeed **R. H. Jewens,** promoted. **T. E. Giffin,** assistant supervisor, telegraph and signals, Ft. Wayne division, has been appointed to succeed Mr. Suesse. **H. H. Loeffler,** special apprentice, has been named to succeed Mr. Giffin.

A. B. Harris, locating engineer of the Illinois Central, with headquarters at Chicago, has retired after 27 years' service with that company.

The Santa Fe announces these appointments: **R. B. Ball,** chief engineer of the Coast lines, has been appointed assistant chief engineer of the Santa Fe System, with headquarters at Chicago. **M. C. Blanchard,** chief engineer of the western lines of the Santa Fe and the Panhandle & Santa Fe, with headquarters at Amarillo, has been named to succeed Mr. Ball at Los Angeles. **W. W. Kelly,** district engineer of the Coast lines at Los Angeles, has been appointed to succeed Mr. Blanchard.

Obituary

Thomas E. Mitten, one of the outstanding street railway managers of the world, drowned in a pond on his estate near Milford, Pa., October 1. Mr. Mitten, who was 65 years of age, was president of Mitten Management, Inc., which

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IN keeping with its endeavor to provide the greatest measure of travel comfort and convenience for its patrons, the Baltimore & Ohio has now placed in service on *The* CAPITOL *Limited* new sun-room parlor-observation-lounge cars.

A spacious glass-enclosed sun-room, comfortably seating eight people, affords a splendid opportunity to view the passing scenery without the discomfort of dust and inclement weather.

An unusually large lounge, pleasingly decorated and furnished with comfortable chairs, settees and lounges of walnut, upholstered in colorful designs of mohair plush, writing desks, periodical and end tables, with softly shaded lamps.

Passengers may partake of their favorite soft drink and light refreshment served from the fully equipped soda fountain buffet.

The CAPITOL *Limited* also carries a Club Car and such special features as Train Secretary, Maid-Manicure, Barber-Valet and Shower Bath; Newspapers and Magazines.

Baltimore & Ohio

operates the Philadelphia Rapid Transit Company system, the Inter-Railway Company of Buffalo, the Yellow Cab Company of Philadelphia and a number of enterprises outside the street-railway business. The report of his death indicated Mr. Mitten had started fishing about 5 o'clock in the morning and probably had fallen from his boat, his watch having stopped at 5:10.

Mr. Mitten was born at Brighton, Sussex, Eng., March 31, 1864. His first railroad experience was as joint agent for the Chicago & Indiana Coal Railway and the Big Four Railroad at Wyndham, Ind., in 1885. His pay was $30 a month. Two years later he was made local agent at Attica, Ind., where he obtained experience in train dispatching. Next he went with the Denver & Rio Grande at Pueblo, and later as assistant freight agent at Denver.

After three years Mr. Mitten took charge of a short steam suburban line running from Denver to the coal mines in the foothills at Golden, Colo. While in that position he electrified parts of the road, thus gaining his first knowledge of electricity as a transportation agency. The success of that experiment created in him an ambition to enter the electric street railway industry.

As chairman of the executive committee of the Philadelphia Rapid Transit Company he assumed responsibility for the company's rehabilitation and its operating organization. He was president from 1914 to 1923, after which he continued as chairman of the board. He retained the latter position when in 1927 he passed on to his son, Dr. Mitten, most of the duties which he had been performing.

William J. Dudley, for eleven years superintendent of the relief department of the Baltimore & Ohio, died September 19 in Baltimore, after an illness of several months. Mr. Dudley was 61 years of age. He began his service with the B. & O. in 1891 as a clerk, and was promoted to superintendent of the relief department in 1918.

Nathaniel M. Rice, vice president in charge of purchases and stores of the New Haven, died at New Haven on September 4, aged 66.

Alfred Price, former general manager of the eastern lines of the Canadian Pacific, with headquarters at Montreal, died at Toronto, September 2.

Nicholas D. Maher, president of the Norfolk & Western from 1918 to 1924, died in Roanoke, Va., September 24. Mr. Maher was 67 years of age. For more than half a century he was identified with railroad work, having started as a clerk in the office of the superintendent of transportation on the Pennsylvania in 1871.

Howard K. Brooks, for 15 years vice president of the American Express Co., died September 15 at his home in New York, aged 75.

Percy Hewett, superintendent of telegraph of the Southern Pacific lines in Texas and Louisiana, with headquarters at Houston died in New Orleans September 15 while going to attend a session of the telegraph and telephone section of the A. R. A. at St. Paul. Mr. Hewett had been connected with the Texas and Louisiana lines of the Southern Pacific for 40 years. For 27 years he had served as head of the telegraph and telephone department. He was 60 years of age.

J. B. Scott, general eastern passenger agent of the Baltimore & Ohio at New York, died of heart disease at his home in that city September 20. Mr. Scott was 60 years of age. He had been in the service of that road for the past 43 years, being first employed in the freight offices as bill clerk. He was appointed general eastern passenger agent at New York in 1909.

Supply Trade Notes

Edward E. Schlesinger, chief draftsman of the **Union Metal Products Co.,** has been appointed mechanical engineer to succeed **N. C. Thalheimer,** deceased.

The Morrison Railway Supply Corpn. announces that **George J. Diver** has been appointed general manager of sales in charge of the frog and switch division.

R. B. Pogue of the engineering department of **The American Brake Shoe & Foundry Co.** has been appointed assistant chief engineer. Mr. Pogue, who is a graduate of the University of Kentucky and of the College of Railway, Mechanical and Electrical Engineering of the University of Illinois, has been with the American Brake Shoe & Foundry Co. since 1916. He was with the Rock Island during 1915 and 1916 as special apprentice in the mechanical department and during the World War he was officer in charge of engineering for the bureau of air of the central district with headquarters with the Curtiss Aircraft Corpn. at Buffalo.

Howard Mull, manager of railroad sales of the **Warren Tool & Forge Co.,** Warren, O., has been appointed vice president.

Blake C. Hooper, manager of railroad sales of **The Baker-Raulang Co.,** Cleveland, has been appointed sales manager of the Baker industrial truck division. Mr. Hooper will continue in charge of the railroad department.

Robert W. Woodruff, president of Coca Cola, has been elected president of the **White Motor Co.,** succeeding **W. C. White,** deceased.

H. O. K. Meister, general sales manager at Newark of the **Hyatt Roller Bearing Co.,** has been appointed assistant general manager. Mr. Meister has been with the company more than 15 years.

A heavy steam locomotive almost completely equipped with roller bearings is being manufactured by the **American Locomotive Co.** It will be of the 4-8-4 type, weighing about 430,000 pounds, and operating at a boiler pressure of 250 pounds. The Timken Roller Bearing Co. contracted for the building of the locomotive, and will submit it to road tests in different parts of the country.

A. Verne Jackson, chief engineer of the K. & W. Equipment Co., has joined the **Buda Co.** as district sales manager in the Michigan, Indiana, and Ohio territories, automotive division.

The Chain Belt Co., Milwaukee, announces the removal of its Houston office to 1310 Second National Bank bldg.

The Verona Tool Works announces that **Porter L. Laughlin,** formerly district sales manager at Chicago, has been reappointed to this position to succeed **Byron M. Cheney,** resigned.

Eccles & Davies Machinery Co., Inc., Los Angeles, has been appointed West Coast representative of the **Hyatt Roller Bearing Co.**

Perry W. Olliver, representative of the **Sullivan Machinery Co.** at El Paso, has been appointed manager of the San Francisco office to succeed **Ray P. McGrath,** deceased.

R. F. Hoffmark, general superintendent of **A. Guthrie & Co., Inc.,** has been appointed vice president.

The **Central Alloy Steel Corpn.,** Massillon, O., has acquired the entire business and assets of the **Interstate Iron & Steel Co.** of Chicago. The Interstate company operates three plants in the Chicago district.

The **Central Alloy Steel Corpn.** has authorized an expenditure of more than $600,000 for improvements at the Massillon and Canton plants. At Massillon, the sheet rolling mill plant will be equipped with continuous pack and pair furnaces, and electric drive equipment will be installed. At Canton, a normalizing furnace designed by the company's engineering and metallurgical departments is to be installed.

'RALSTON BUILT'

Steel and Composite Cars

Completely rebuilding large numbers of steel cars in record time is an achievement that Ralston Steel Car Company has repeated time and time again.

This is possible only through our excellent facilities and well-balanced program, which, together with skilled workmen and competent engineers, keep the cars moving through the plant on regular schedule.

THE RALSTON PLANT is equipped to build New Cars, to Rebuild Old Cars, to Repair and to supply repair parts. All materials and work of the highest QUALITY and performed under expert Engineering Supervision.

RALSTON STEEL CAR CO.
COLUMBUS, OHIO

A *trip to California*

is not complete unless you go at least one way through the Feather River Canyon, the route of the **Scenic Limited.** For descriptive literature and complete information write:

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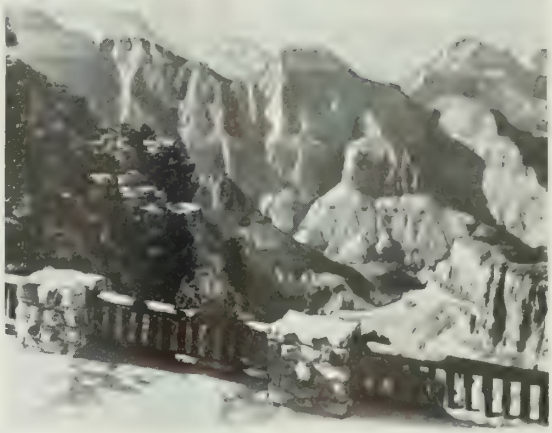
THE FEATHER RIVER ROUTE



View of Grand Canyon from Grand Canyon Lodge.

Largest Fleet of Trains

—operating between Chicago and the Pacific Coast

Not only for its historical background but for the magnitude and high efficiency of its operations, the Union Pacific holds a place unique among American railroads.

Over its lines between Chicago and the Pacific Coast centers of Los Angeles, San Francisco, Portland and Seattle—the Union Pacific is now operating the largest fleet of trains serving this vast territory. And throughout transportation circles, this great system is recognized as a standard for high grade maintenance, on-time operation and satisfactory service to the public.

Union Pacific
THE OVERLAND ROUTE

10-3

The J. C. Brill Co. announces that **H. Paul Cleaver,** assistant superintendent of the Philadelphia plant, has been appointed superintendent to succeed **O. C. Kahler,** resigned.

The Locomotive Firebox Co. announces that it has arranged for additional space in the Union Carbide & Carbon Bldg., 30 East 42nd St., New York, and that the offices now occupy Suite 825, 826 and 827.

Ross M. Blackburn has been appointed district sales manager of the Chicago territory of the **Buda Co.,** with headquarters in the Railway Exchange Bldg., Chicago.

Ralph S. Cooper, first vice president of the **Independent Pneumatic Tool Co., Chicago,** has been elected president to succeed **John D. Hurley,** deceased. **Neil C. Hurley** has been elected a member of the executive committee and **Raymond J. Hurley,** a director.

The Union Switch & Signal Co., Swissvale, Pa., announces that **W. H. Cadwallader,** acting vice president, has been elected vice president. **M. L. Gray,** assistant to the vice president, has been appointed acting vice president. **H. S. Loomis,** commercial engineer, has been named assistant to the general manager.

J. H. Watters, former vice president of the New York Air Brake Co., has been elected president of the **Marion Steam Shovel Co.,** Marion, O., to succeed **J. L. Ackerson,** resigned.

The Johns-Manville Corpn. announces that its entire foreign business has been taken over by the **Johns-Manville International Corpn.** The officers of the new corporation are: **W. R. Seigle,** president; **P. A. Andrews,** vice president in charge of sales; **J. S. Adams,** vice president in charge of sales promotion; **J. S. Crawford,** treasurer; **C. L. Sager,** secretary, and **J. L. Pichetto,** assistant treasurer. The directors are: **Lewis H. Brown,** chairman; **W. R. Seigle, E. M. Voorhees, P. A. Andrews, J. S. Adams, E. S. Crosby** and **C. L. Sager.**

The Chief — Santa Fe

The California Limited

The Grand Canyon Limited

and four more

FAST TRAINS EAST *every day*

Nº 499 **Best Personal Service**

JAS. B. DUFFY
Assistant Passenger Traffic Manager
LOS ANGELES

W. J. BLACK
Passenger Traffic Manager
CHICAGO

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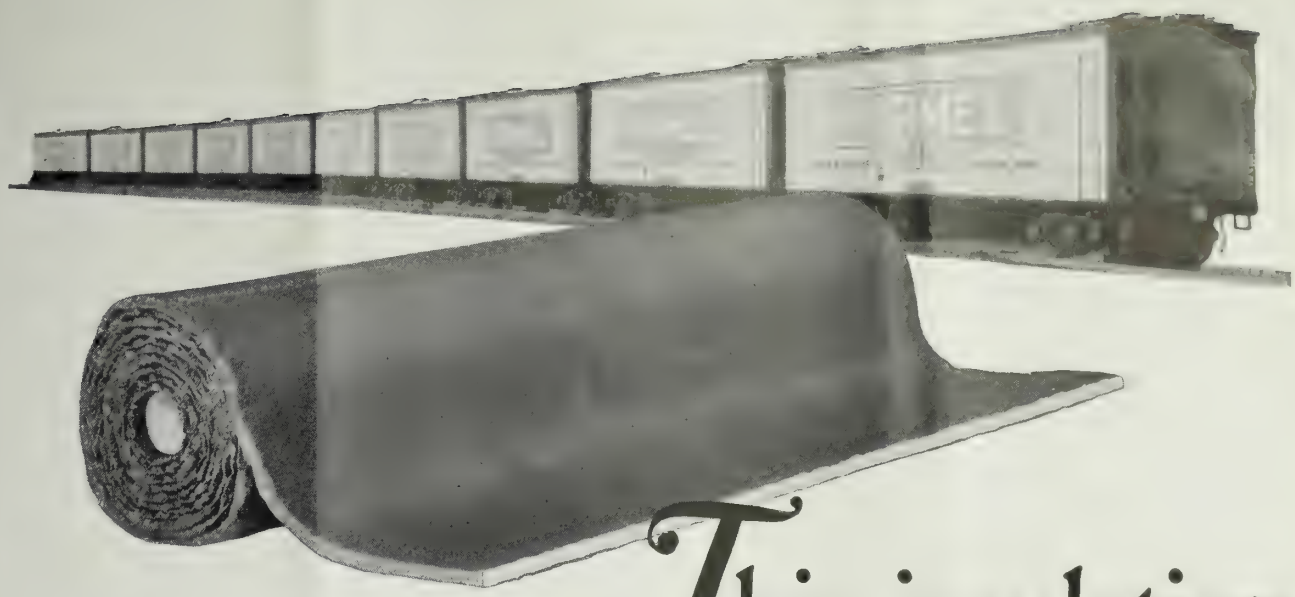

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BALSAM-WOOL Refrigerator Car Insulation gives assurance of constant, efficient protection through the strains and distortion of thousands of miles of service. Refrigerator cars insulated with Balsam-Wool give assurance of maintaining correct temperatures between icing points. The protection from outside heat gives a margin of many hours that means safety for perishable shipments.

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Balsam-Wool Blanket

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DRAFT GEAR TO PROTECT THE CAR AND THE LADING

The New Removable Wearing Plat (Type L 1), Greatly Increases the Lif of the Gear

STANDARD COUPLER CO

NEW YORK CHICAG

RNIA

Transportation

The National Monthly of the Transportation Industry

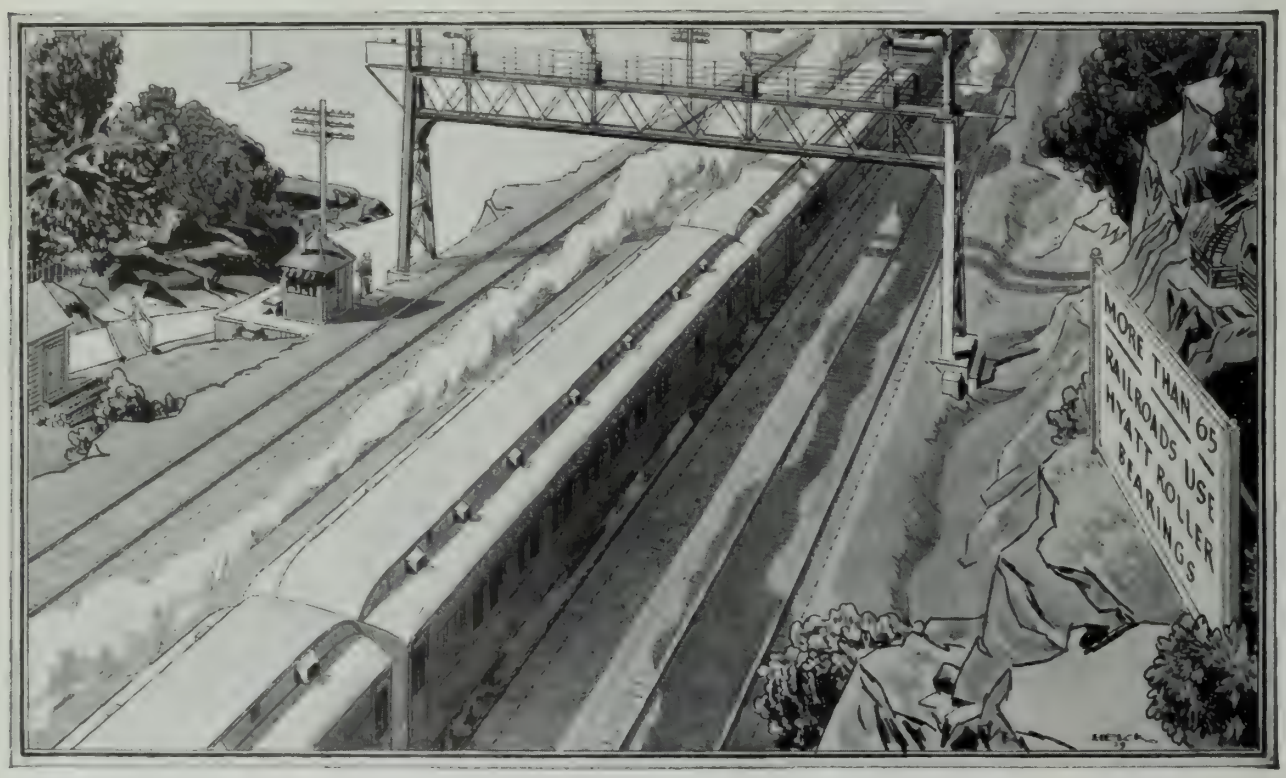
CALIFORNIA STATE LIBRARY

Vol. V November 1929 No. 5

THAT the railways of America are doing their utmost to provide greater travel-comfort is found in the fact that the railways of America are becoming Hyattways.

This means that Hyatt Roller Bearings are replacing plain brass journals which carry the fast-revolving car axles. It means smoother starting . . . more rapid acceleration . . . freer running . . . jerkless stopping.

The Railways of America are becoming Hyattways



Hundreds of cars operating on more than sixty-five American and Canadian Railroads are now employing journal boxes equipped with Hyatt Roller Bearings.

Years of experience on these many roads has proved that in addition to gaining greater good will and increased patronage, the use of Hyatts reduces operating and maintenance costs, eliminates the hazards and delays of hotboxes, helps maintain "on time" schedules and permits the hauling of more cars with existing locomotive equipment.

HYATT ROLLER BEARING COMPANY
Newark Detroit Chicago Pittsburgh Oakland

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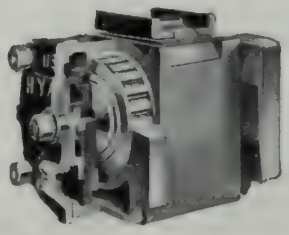
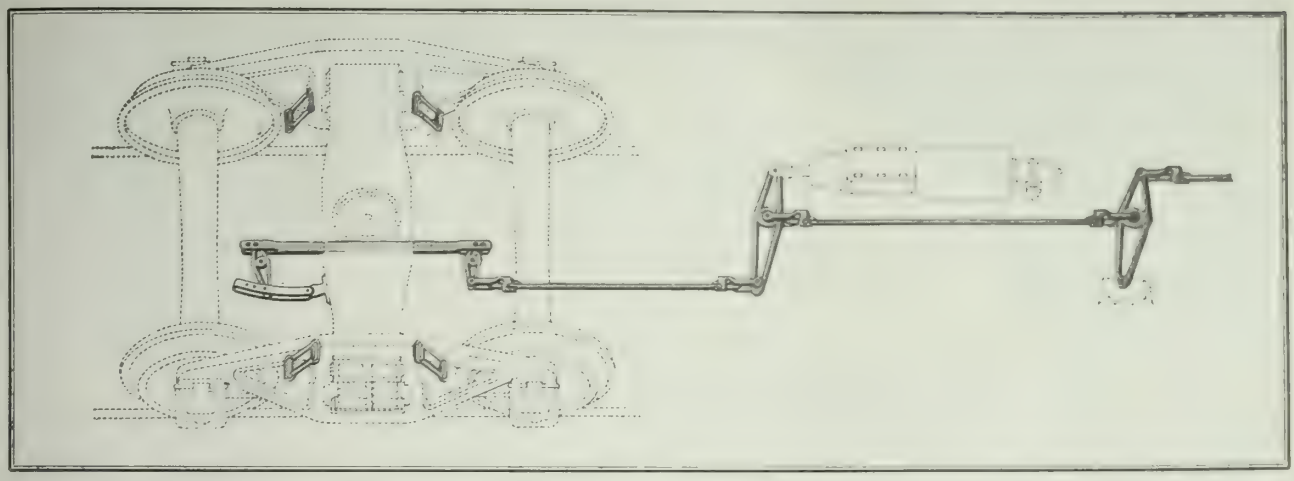
ROLLER BEARINGS
PRODUCT OF GENERAL MOTORS



The many Hyatt equipped commuter specials, diners, Pullmans and de luxe coaches which are in operation now are conclusive proof that the Hyattway is the Right Way—for Hyatts meet every A. R. A. standard.



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SCHAEFER Brake Gear Details are designed with one fundamental objective—absolute safety of train operation.

In accomplishing this they also reduce the car weight by 115 pounds which permits 115 pounds more revenue load per car.

Every unit in Schaefer Brake Gear Details is drop forged from special wear-resisting steel.

Every part is entirely free from welds. Because of the special forging process and the special steel, greater strength and lighter weight are obtained.

Schaefer Brake Gear Details used as a unit assure lower maintenance and replacement costs, absolute safety and increased car capacity for revenue load.

SCHAEFER EQUIPMENT COMPANY

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23
Useful Years

NEW developments are often interesting, but more important are the results of proven experience.

Men in important positions, of great responsibilities, demand facts proven by experience.

The fact that the Grip Nut Company is now twenty-three years old, that twenty-three years ago they made the first Grip Nut and that they have continued their work of development and progress is proof of the merit of their product.

The fact that certain railroads have used the GripNut Company's products for a continuous period of 18 years is "proven experience."

Further, the fact that certain railroads whose Bad Order Equipment is less than 2%, continue to use Grip Nuts as common standard, is proof of the recognition of their merit by men in responsible positions.

GRIP NUT COMPANY

5917 So. Western Avenue
Chicago, Ill.

Transportation

(Reg. U. S. Patent Office)

The National Monthly of the Transportation Industry

NOVEMBER, 1929

VOLUME FIVE — NUMBER FIVE

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AMONG THE MEN WHO DO THE WORK

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100% Increase In Six Years

"A NEW record of freight service efficiency on Boston & Maine Railroad was set last week, when the road's operating forces moved 22,070 ton miles of freight in each hour of freight train operation.

"Best previous record on Boston & Maine under normal operating conditions was 21,770 gross ton miles per train hour made in one week last May.

"Extent to which Boston & Maine's freight efficiency has improved in recent years is indicated by fact that in 1923 the average was 10,581; in 1924, 12,575; 1925, 13,596; 1926, 14,159; in 1927, 14,750, and in 1928, 18,534. In the first eight months of 1929 it had been brought forward still further to 20,510, with an indication that for the full year 1929 it will be 21,000."

—*Wall Street Journal*

Twenty Lima Super-Power locomotives of the Berkshire Type have been in service on the Boston & Maine since May, 1928 and have had a part in making this record.

Five more duplicates from Lima have just been placed in service and will help to establish still higher records.

LIMA LOCOMOTIVE WORKS

Incorporated

LIMA, OHIO

—Photo by Pontin & Wyman

London, Midland & Scottish, Boat Special, London to Liverpool, 194 Miles, Non-Stop. Picture Made at 7 p.m.

Where High Speeds Rule the Rails

In This Country Safety Comes First

By Lee G. Lauck

Consulting Economist

For various economic reasons the speeds of some of the fastest passenger trains in the United States today do not compare with the speeds maintained ten or fifteen years ago. Nevertheless, during recent years many of the slower trains have been accelerated and the number of fast trains increased. On the whole, therefore, considerable progress has been made in providing quick transportation by rail, even without the whirlwind performances of some of the "midnight flyers" in days gone by.

Some pessimists say that a railway company gains nothing by maintaining excessive speeds, and that passengers, as a rule, do not wish to travel faster than 35 or 40 miles an hour, inclusive of stops. If this were true, and the same amount of traffic could be secured with slower trains, a considerable economy might be effected. The prevailing opinion among railway experts, however, appears to be that quick service, provided it is also safe, attracts traffic, and that the reputation a railway acquires benefits even the slowest accommodation trains.

It is quite true that more fast trains were running over long distances twenty or thirty years ago than now, and that managements "put the soft pedal" on such performances only because they did not pay. The average American today does not appear to be greatly concerned about exceptionally swift passenger service, so long as the railways continue to maintain the present comforts of travel and the dependability in the services they now offer. The day has long since passed when it was considered good policy to run abnormally fast trains merely for advertising purposes. The ideal aimed at is to

Rock Island Lines' New Golden State Limited, the New Rocky Mountain Limited, and New Iowa-Nebraska Limited. Leaving Chicago; Photographed at Fifty-Second Street.

The Railway Station in Venice, Italy.

make every train pay its own way and get over the journey with the least possible disturbance to the schedules of other trains. The American railways today are doing everything they can to give their patrons whatever they are willing to pay for by way of convenience and speed in passenger service, and they would be quite foolish to attempt to lay out the whole road for the benefit of some exceedingly fast train that the public will not support.

Some of the speediest long distance passenger trains on the railroads in the United States today are shown in the first table accompanying this article. The distances traversed range from 55.5 miles to 1,781 miles: New York and Chicago. The Empire State Express of the New York Central, which runs 435 miles at an average rate of 49.7 miles an hour, has been running for about 36 years, and is commonly regarded as one of the safest long distance trains in the world. During the last five years all these trains have been made heavier by putting on additional cars, and yet the speeds have been slightly improved. Records of trains between points in other sections of the country show results as good as some of those set forth in the first table quoted.

The fastest trains in this country are in the short distance class, and are operated between Camden and Atlantic City. On this run the Philadelphia & Reading Ry. has trains of 10 and 12 all-steel cars running 55.5 miles at the rate of 58.4 miles an hour. The Pennsylvania's average over a trifle longer route is slightly less. These runs, while slower than formerly, are still the fastest in the country.

Table I

Railroad	Train	Run	Distance	Average Speed
Reading	Boardwalk Flyer	Camden to Atlantic City	55.5	58.4
Pennsylvania	Congressional Lim.	Washington to New York	226.5	50.3
New York Central	Empire State Exp.	New York to Buffalo	435	49.7
New York Central	20th Century Lim.	New York to Chicago	960	48.0
Pennsylvania	Senator	Washington to Boston	455.6	47.5
New York Central	Detroiter	New York to Detroit	690	46.8
New York Central	Southwestern Lim.	New York to St. Louis	1156	46.2
Pennsylvania	Pittsburgher	New York to Pittsburgh	439.8	45.9
Union Pacific	Overland Limited	Omaha to Cheyenne	507	45.9
Pennsylvania	Broadway Limited	New York to Chicago	908.2	45.4
Pennsylvania	The American	St. Louis to New York	1051.7	44.8
Pennsylvania	Liberty Limited	Washington to Chicago	836.3	44.6
Illinois Central	Panama Limited	Chicago to New Orleans	921.2	43.9
Baltimore & Ohio	Capitol Limited	New York to Chicago	1010	43.4
Pennsylvania	Fifth Ave. Special	Chicago to New York	960	41.9
Southern	Crescent Limited	New York to New Orleans	1358	38.3
Southern	Birmingham Spec.	Birmingham to New York	1031	38.2
Great Northern	Fast Mail	St. Paul to Seattle	1781	37.7
Union Pacific	Los Angeles Lim.	Cheyenne to Omaha	507	45.4

The time of arrival and departure of passenger trains in the United States is in many, if not most, instances fixed to meet the conveniences of the traveling public. For example, nothing is gained by having a train arrive at a terminal before 7 a.m.

For a number of years the 20-hour trains of the New York Central and the Pennsylvania, the most notable trains in the world, have maintained their remarkable schedules between

It would be a great mistake to compare the passenger train schedules of western United States railroads, with the schedules of passenger trains in Europe, or with the schedules of eastern railroads. For example, the Northern Pacific operates 6,682 miles of railroad of which only 820 miles is double track, and it has a great many grade crossings of highways and other railroad tracks. In spite of this its transcontinental trains are faster than ever. For many years it has maintained a schedule between St. Paul-Minneapolis and Pacific Coast terminals (Portland, Seattle and Tacoma) of approximately 70 hours. The North Coast Limited makes the run in 52 hours, and from Chicago to coast terminals the time is 63 hours.

On the long distance crack passenger trains in the East as well as the West, all the modern conveniences of travel both for comfort and business are provided, including smoking rooms, libraries, bath, barber, valet and stenographer. Maid service is also provided for women passengers. These manifold comforts have proved a great success both from the standpoint of the traveling public and the railroad managements.

England is such a small spot on the map that to cross it by railroad takes only a few hours. In spite of this, the average Britisher, although not generally regarded as a hustler, is not contented unless he can travel across the short distance at a very high speed with a minimum loss of time. To meet his wishes the four large British systems have improved their roads and trains until they have brought time saving to a fine art. The second table gives a complete list of the higher speed British passenger trains, or those scheduled at speeds of 58 miles an hour and over.

For a really magnificent exhibit of regularly maintained high-speed service, one which provides a decided public benefit, England without a doubt stands alone. The country's populous cities afford a dense passenger traffic to support it. For example, the table shows seven daily trains from start to stop averaging over 60 miles an hour. These seven runs include the Swindon-Chippenham slip car in the Swindon-Bath run from Paddington to Bristol, from which the slip is detached. The Great Western Railway, with the inclusion of the two down 175-minute runs to Exeter, timed at 60.4 miles an hour between Southal and Exeter, has seven 60 miles an hour schedules over distances exceeding 90 miles; the two runs just mentioned, on four of the Bristol two-hour trains, and on the South Wales express between South-

al and Badminton. From the safety point of view it is significant that the Great Western Railway, which sets the highest speed standard in Great Britain, also has the best record for freedom from accident, having suffered no mishap to a passenger train involving loss of life for 23 years past, during the course of which most of these high speed schedules have been initiated.

French railways are now well back to pre-war efficiency with respect to their passenger service. There has been a very marked expedition of services, even on the lines which hitherto have displayed little interest in fast traveling. On the State Railway, for example, it is now possible to cover the 100.8 miles from Rennes to Le Mans in 117 minutes; at an average speed of 51.7 miles an hour, and the 86.7 miles from Paris to Rouen in 102 minutes, the latter average of 51.0 miles an hour including a severe slack in a tunnel in course of construction. The third table shown here gives a list of the French passenger trains scheduled at 58 miles an hour or over, while the fourth shows some of the other long distances and fast schedules.

On the Nord Railway there are 12 expresses which maintain an average rate of 60 miles an hour for 90 miles or over continuously, even though certain of these runs do not figure in the French tables owing to difficult portions of their journeys over the sections most remote from Paris requiring lower average speeds. For example, the Paris-Jeumont, and the Paris-Brussels runs are all scheduled at 60 miles an hour between Paris and Saint-Quentin; on the Paris-Dunkerque runs the allowance of 120 minutes in each direction over the 119.4 miles between Paris and Arras indicates an average rate exceeding 60 miles an hour for more than a hundred miles of the distance; the Calais boat express for the 109.1 miles between Paris and Abbeville maintains an average rate of exactly 60 miles an hour; and the Golden Arrow expresses between Paris and Calais run the 156.5 miles between Paris and Outreau Junction at Boulogne in 156 minutes. The palm for speed in Europe, and probably in the world, is now held by the Nord Railway, with the run of the Berlin express out of Paris, which is booked to make Saint-Quentin, 95.7 miles, in 92 minutes after starting, at 62 miles an hour from start to stop.

Photo by Pierce & Warne

London & North Eastern, Fast Freight, at Hadley Wood.

Table II

Railway	From	To	Distance	Average Speed
Great Western Ry.	*Swindon	Chippenham	16.7	62.5
Great Western Ry.	Swindon	Paddington	77.3	61.8
Great Western Ry.	*Paddington	Bath	106.9	61.6
London & North Eastern Ry.	Darlington	York	44.1	61.5
London & North Eastern Ry.	Leicester	Nottingham	22.6	61.5
Great Western Ry.	Swindon	Bath	29.6	61.2
London & North Eastern Ry.	Aylesbury	Leicester	65.1	60.1
London & North Eastern Ry.	Brackley	Rugby	23.9	59.8
London & North Eastern Ry.	Rugby	Leicester	19.9	59.7
Great Western Ry.	*Paddington	Exeter	173.7	59.6
Great Western Ry.	Paddington	Bristol	118.3	59.2
London Midland & Scottish	Willesden Jct.	Birmingham	107.5	59.2
Great Western Ry.	Paddington	Tauton	142.9	59.1
Great Western Ry.	Bristol	Paddington	117.6	58.8
Great Western Ry.	*High Wycombe	Leamington	60.8	58.8
Great Western Ry.	*High Wycombe	Banbury	41.0	58.6
Great Western Ry.	*Paddington	Westbury	95.6	58.5
London Midland & Scottish	Luton	Kettering	41.0	58.3
London & North Eastern Ry.	Woodford	Aylesbury	31.1	58.3
London Midland & Scottish	Euston	Coventry	94.0	58.2
Great Western Ry.	Paddington	Leamington	87.3	58.2
Great Western Ry.	Paddington	Kemble	91.0	58.1

*Slip coach service.

Many of the French runs are noteworthy on account of the single-headed loads carried. The full load of the Golden Arrow, consisting of ten 77 foot Pullman and a baggage car, is 500 tare tons; the 58.1 miles an hour average speed of this train is, therefore, remarkable in view of the fact that it climbs three long grades, including the eight-mile ascent to Chaffiers Summit at 1 in 125.

Another fast train in France is the Sud Express over the Midi Railway between Bordeaux and Dax, averaging 61.9 miles an hour, and it is worthy of comment in that the haulage in this case is electric.

To maintain such a high rate of

Photo by Pierce & Warne

Southern Railway (England) The Morning Continental Express at Full Speed.

—Photo by Pontin & Wyman

The New York Central's Lake Shore Limited. Not Much Smoke Coming Out of That Stack.

daily speed, with comfort and safety to passengers, many hundreds of thousands of dollars have to be spent on the maintenance of way and equipment. In the United States, Great Britain and France, traveling by rail is now becoming so delightfully smooth, there being very little jolting nowadays, that it is difficult to realize that the train is moving at all, let alone to conceive that it is rolling along at from 35 to over 62 miles an hour, which certainly is a remarkable accomplishment perfected in transportation by rail in these three countries.

The general impression with relation to present passenger train frequency and speeds in Germany is that a set and slow average rate of progress is the prescribed rule. The present speeds prevailing on the main lines in Germany are usually low, not yet having recovered from the slump in railway speed brought about by the late war. There are indications that the serious inroads made by aerial transport on long-distance railway traffic in Germany will soon make railway acceleration inevitable, if the best class traffic is to be retained, but at present, average start-to-stop railway speeds much in excess of 50 miles an hour are infrequent.

Although great improvement has been shown in the passenger train services in Belgium, Italy, Switzerland and Spain since the World War, they have not entirely been restored to what might be considered an entirely permanent level in the matter of speed and frequency. Of the four countries mentioned Italy might be considered as making the most substantial strides in seeking this objective. For example, the new "Dviettissima" express route between Rome and Naples, and the short route between Bologna and Florence are expected to open next year, on the completion of the great 11½-mile tunnel under the Apennines. It would appear that European countries do not consider that they have reached, as yet, the "economic limit" of railway speed.

These striking facts relative to the speed and frequency of passenger trains in the United States and Europe are not given with the intention of comparing train speeds in the several countries, but merely to show how the railways here and abroad are striving daily to give their patrons whatever they are willing to pay for by way of convenience and speed in passenger service.

Table III

Railway	From	To	Dist.	Av. Spd.
Midi	Bordeaux	Dax	91.7	61.8
Nord	St.-Quentin	Paris	95.1	62.0
Nord	Paris	Aulnoye	134	59.6
Nord	Paris	Abbeville	109.1	59.4
Nord	Paris	Arras	119.4	59.2
Nord	Paris	Jeumont	147.9	59.2
	Jeumont	Paris		
Nord	Paris	Etaples	140.9	59.1
Nord	Paris	Compiegne	51.9	58.7
Nord	Arras	Longneau	41.1	58.7
Nord	Etalpes	Amiens	59.5	59.5
Nord	Aulnoye	St.-Quentin	38.9	58.4
Nord	Paris	Calais	184.3	58.3
Midi	Dax	Bayonne	31.1	58.3

The speed question has its romantic side and its sporting side, but in the final analysis it comes to a business proposition. If it is bad business naturally the railways want nothing of it. Sixty miles an hour is fast enough for any person to ride, fast enough, anyway, for all practical purposes. The day will come when trains will be run by electricity on a single rail at the rate of 100 miles an hour, or, in other words, will convey passengers from New York to San Francisco in about 30 hours. At that rate of speed, provided tunnels could be carried under the ocean, a train could go around the earth at the

Table IV

Railway	From	To	Dist.	Av. Spd.
Nord	Dunkerque	Paris	193.9	57.3
Est	Bar-sur-Aube	Chalons	50.5	57.2
Est	Paris	Chalons	107	57.0
Nord	Paris	Dunkerque	193.9	56.8
Est	Chaumont	Troyes	59.4	56.7
Est	Paris	Troyes	103.3	56.4
P&O	Paris	Les Aubrais	73.9	55.5
Nord	Paris	Brussels	193	55.2
	Brussels	Paris		

equator, 24,000 miles, in ten days. That, of course, shall never be.

Apology to Cy Warman

The October issue of this magazine contained a set of verses entitled "White Lights Ahead." These verses were bought as the product of John A. Lambert, who represented himself to be a locomotive engineer living at Bayfield, Wis. The editor has been informed that these verses appeared several years ago in a collection, "Songs of Cy Warman," published in Boston by the Rand Avery Supply Co., at a time when the standard clear signal was white. The editor regrets that he was imposed upon, a circumstance to be attributed to his inability to distinguish between honest workmen and literary bandits. Many editors have been victims of plagarists. It is comforting, however, to reflect that in most cases, as in this one, the article stolen was well worth buying.

He Missed His Christmas

Is the loss of the potent scent of roasted turkey and the glow of the Christmas candles on a freshly cut pine tree, with the warmth of the home fires, worth $10,000? J. Alvin Hyle of Los Angeles declares he is entitled to that sum because he was forced, against his will, to miss these luxuries. He has filed a suit in United States district court against the Pullman Company of Illinois.

Hyle states in his complaint that he left Chicago on December 22, 1928, for Los Angeles, with fond expectations of meeting his family to partake of a Christmas turkey. He said that the train did not seem fast enough so he arranged to be transferred at El Paso to the Sunset Limited. After leaving the original train, he recites, he found westward travel was so heavy that he had to wait several days, missing his Christmas dinner. He is suing for $10,000 damages.

The Steel Car Shop Interior at the New Plant of the Pullman Car & Mfg. Corpn. at Bessemer, Alabama.

New Pullman Shops Up in 188 Days

A Record Made At Bessemer

By H. W. Brewer

THE HIGH degree of efficiency made possible in these modern times by trained engineers and constructors was convincingly demonstrated during the last few months in the record achieved at Bessemer, Ala., where huge shops covering 100 acres were built for the Pullman Car & Mfg. Corpn. Here, 16 buildings containing 418,000 square feet of space, were made ready for the manufacturing of freight cars, steel and wood, in exactly 188 working days from the clearing of the site, and one of the shops is nearly 1500 feet long.

The details, avoiding much that is technical, are interesting. In January the site was occupied by the old blast furnaces of the Tennessee Coal, Iron & Railroad Company with depressed tracks and pits, old coke ovens and slag dumps.

On February 14 ground was broken for construction and on September 19 construction work was completed, 188 working days after the first excavation. In view of the character of the site, 158,000 yards of grading being required, the record is considered unusually creditable. The big plant consists of three main groups of buildings:

1.—Steel shop group with a steel fabricating and erecting shop 102 feet by 1464 feet; a machine, forge, wheel and truck shop, 90 feet by 600 feet, and various small buildings.

2.—Wood shop group with lumber storage shed, canopy, dry kilns, wood mill, wood erecting shops, etc.

3.—Paint shop group with paint shop 70 feet by 400 feet and paint mixing building, both of which were a part of a plant 15 miles away, taken down, moved and erected at Bessemer.

There is also a general office building, and many auxiliary structures, all of them covering 25 acres. In the progress of the work the United Engineers & Constructors, Inc., of Philadelphia and New York, in cooperation with and under the direction of the Pullman Car & Mfg. Corpn., employed 1,000 men, used 3,800 tons of steel, 175,000 square feet of sash, 580,000 square feet of siding and roofing, did 158,000 cubic yards of grading, and built eight miles of railroad track.

In addition to the three units, there are several auxiliary departments, the template shop, general stores, toolrooms, toilets, wash and locker rooms, boiler room, shop offices, dispensary, waste soaking plant, scale house, etc. Crane storage yards are at the south end of the steel fabricating shop and at both ends of the machine, forge and truck shop. A monorail fitted with 5-ton electric hoists is located over four tracks south of the paint shop. These facilities operate in conjunction with one or more of the three main units.

Extensive yard grading was necessary to cut down the slag dumps, with cutting and blasting of old foundations to make way for new building construction and underground piping systems. Eight miles of track in shops and yard is laid with 85-lb. relay rail on creosoted ties and ballasted with crushed slag. Track specialties were purchased and laid in accordance with the Pullman Car & Mfg. Corpn., standard specifications.

An excellent water supply, adequate for service, drinking, and for fire protection is afforded either on the new property or from the city in an emergency. By-products gas has been piped to the plant by the Woodward Iron Company for firing the boilers, heating miscellaneous buildings, and firing the plate and rivet heating furnaces throughout the plant. The gas entering the substation is compressed to 25 lb. per square inch and distributed throughout the shops of unit 1 for furnace firing. Compressed air is run underground from the substation to the various shops. Air lines are extended along the outgoing tracks from unit 1 and at both ends of unit 3. These lines are fitted with service outlets located in boxes along the tracks. A pipe tunnel is provided between the substation and unit 1 for carrying the service water, high pressure gas, compressed air, 1500 lbs. pressure hydraulic line and return.

The Birmingham Electric Com-

General View of the New Car Building Plant Just Completed.

pany installed a 3-phase, 60-cycle, 13,200-volt current incoming connection to its substation west of the plant. This substation is equipped with three 1250 KVA transformers for reducing the current to 2300 volts for delivery to the Pullman substation. From the new substation the current is again reduced to 440 volts and distributed overhead to the various units for general shop power. Power for lights is distributed at 2300 volts and stepped down through transformers adjacent to various buildings for the 110-220 volt 3-wire AC lighting system; 230 volt direct current is distributed through the shops in units 1 and 2 for crane service; 180 cycle, 230 volt high frequency current is run into the steel erecting and wood erecting shops for high speed tools.

The foundations for all buildings are concrete extending through the old fill to natural grade at an elevation approximately 12 feet below the floor. The substation foundations are carried down to rock at an elevation of approximately 17 feet below general yard grade. Spread column footings are designed for a soil pressure of 4000 lbs. per sq. ft. All shop buildings are designed with a structural steel frame in accordance with the specifications of the American Institute of Steel Construction. The roofing on all shop buildings except the rebuilt buildings is made of Johns-Manville deep corrugated Transite. The template shop has a wood roof deck covered with built-up tar and gravel roofing.

The general office is a one-story building isolated from the main plant and is of different architectural design and construction than the shop buildings. The building is constructed with concrete foundations (with part basement), wood frame, brick walls, steel sash glazed with clear glass, asbestos shingle roof and hardwood floors. The building is subdivided by metal lath and plaster partitions into offices for the general superintendent, auditor and accountants, paymaster, drafting and estimating department. The office is well provided with large sash openings for natural lighting, and is also equipped with general electrical illumination, gas fired steam heating system, lavatories and toilets, vaults and electric drinking water cooling system.

The new shops have a capacity for the construction of 25 freight cars a day. The straight line station-to-station method of car construction was adopted for the new plant. In view of the size of the work and the quantity of heavy bulky material to be handled through the various departments, material handling was one of the first problems to be settled. It was decided to move all material longitudinally through the shops by means of overhead traveling cranes. By segregating the car construction into three units, consisting of steel work, wood work and painting, all cross-the-yard hauls were eliminated with the exception of small store deliveries and some timber work applied to cars along with the steel in unit 1.

Most of the material is worked through units 1 and 2 from south to north. Car erection also progresses from station to station in the same direction. Car painting in unit 3 progresses from north to south. Structural steel, shapes and heavy car parts are delivered to the storage yard, south of the fabricating shop. The overhead cranes handle it from there through the various machine departments and keep it moving north to the assembly floor which is about the middle of the building. Here the under frames, car ends, side frames, roofs, etc., are fitted, reamed and riveted. The pits for the deep gap riveters are so arranged as to permit the storage of 8 to 10 side frames on either side of the riveter.

The heavy duty machine tools, hydraulic presses, steam hammers and substation equipment are set on concrete foundations, which are carried down either to natural grade or rock. The lighter machine tools are set either directly on the reinforced concrete floor or on concrete pads 12 inches to 36 inches thick.

Crane service is provided in units 1 and 2. The steel fabricating and erecting shop, including the storage yard at the south end, is served by five 10-ton traveling cranes; two of these cranes are equipped with lifting magnets. The machine, die, forge, wheel and axle and truck shop, including the storage yards at both ends, are served by three 10-ton cranes. The wood mill and wood erecting shop are served by two 10-ton cranes. The crane runway between the wood mill and the erecting shop is continuous and permits operation of both cranes in one shop or over the transfer table between them.

On the Cover

Honorable mention was given the picture on the cover this month, in the Baltimore & Ohio photograph exhibition last summer. The picture is by G. H. Coster who made several of the excellent photographs shown.

General Offices, Different in Architecture, Well Equipped for Business, Pleasing in Design.

Pittsburgh Tries New Street Car

Aluminum Body, High Speed Motors

By W. T. Rossell

General Mgr., Pittsburgh Railways

Seat Arrangement in the Pittsburgh Railways' New Aluminum Street Cars.

So great has been the country's interest and enthusiasm in the recent achievements of the St. Louis Robin, the Bremen, and the Graf Zeppelin, in the air and water branches of transportation, that comparatively little attention has been given to the unusual developments that have been going on steadily in that division of the industry which carries more passengers than all other public transportation facilities combined, the electric railway.

The trend in the electric railway industry during the last few years has been distinctly one of modernizing in both methods and equipment, of improving street car operations to correspond favorably in points of comfort, speed, and appearance with the private automobile. Particularly has attention been given to the construction of lighter cars with more powerful motors for faster and smoother acceleration, less noise, better braking systems, more comfortable seating arrangements, and improved appearance.

The latest type of Pittsburgh Railways vehicle embodies practically all of the innovations developed in street car construction at present. Notable among its features are: Light-weight aluminum body, high speed motors, pedal-operated controls, worm-drive trucks, spring-suspended motors, electro-pneumatic control, dynamic braking, and individual bucket-type seats.

This car was built after a year's trial with two other experimental vehicles constructed in 1928 along lines suggested by the work of two of the country's pioneers in new car design, W. L. Harwood of Springfield, Mass., and J. R. Blackhall of Joliet, Ill., and contains not only the best features of both but also certain other improvements developed more recently. Some idea of the extensive cooperative efforts of equipment manufacturers and the company's engineers, which were responsible for the completion of this car, will be gained from a glance at the following list of special equipment items included in the car's construction: Aluminum body, I-beams, channels, and tees from the Aluminum Company of America; air brake equipment of Westinghouse Traction Brake Co.; Hale and Kilburn seats; Timken No. 52 trucks of steel construction made by Timken-Detroit Axle Co.; Consolidated Car Heating Co. heating equipment; National Pneumatic door operating equipment; Abrasive Metal Co. step treads; Flexolith floors made by Tuco Products Co.; Ohio Brass trolley bases and dash illuminating headlights; Keystone trolley catchers; Faraday buzzer equipment; Electric Service Supply Co. pull switches for signal system, dome lamp fixtures; Osgood-Bradley ventilators; Ternstedt bus type window regulators; Economy meters; Dupont's Duco pyroxlin lacquer for interior and exterior finish.

This car, built by the Osgood-Bradley Car Co., is made of special aluminum alloy and weighs only 27,000 pounds completely equipped, as compared with 35,000 to 40,000 pounds for the ordinary city car. It is a single-end vehicle (i.e., can be operated only from one end) with doors at the center and front end of the car.

The seats, 42 in number, are the stationary, individual bucket-type, and, with the exception of a double row situated in the left rear of the car, are arranged diagonally as shown in the accompanying photograph. The chair-backs are covered on the front surface with rattan, and on the rear with painted sheet steel. A leather cushion in each seat is mounted on a steel pan, which in turn is fastened to the pedestal brackets at three points spaced on a triangle, so that when the cushion is worn on its front edge it may be changed to two other positions to prolong its life by distributing the wear.

The old fashioned hand straps

Three-Quarter View of New Aluminum Car With Doors Open.

have been eliminated. Instead, stanchions extending from floor to ceiling are placed adjacent to each diagonal seat to give a wide aisle space and to offer a more comfortable and a safer support to standing passengers.

The interior of the car is in a two-tone green with a headlining of ivory. The floor is covered with green flexolith and requires no painting. A row of dome lights on either side of the ceiling affords a clear bright light for newspaper readers and eliminates the possibility of shadow interference from standing passengers.

The car is equipped with a sloping type of front window and sashless plate glass side windows, both of which are similar in design to those used on automotive vehicles.

This new type of trolley car is powered by four spring-suspended Westinghouse type 1426-300 V. motors in series, rated at 50 horsepower, which are geared 4.4:1 to 26 inch wheels. It may be accelerated up to the slipping point of the wheel which is about 5.0 miles an hour per second. This rate continues to 20 miles an hour or higher. The free running speed of the car on the level at 600 volts is 45 miles an hour, and on a 5 per cent grade it will travel 30 miles an hour without difficulty.

The car is equipped with Westinghouse electro-pneumatic type of control, actuated with line current, with variable automatic acceleration and dynamic braking. The car is equipped also with air brake equipment specially designed by the Westinghouse Traction Brake Co. to operate in connection with the pedal electric control.

The master controls, for both acceleration and braking, are foot-operated through two pedals. Variable rates of acceleration and braking may be obtained, and are approximately proportional to the distance the proper pedal is depressed, the maximum being obtained with full depression. Obviously, they have been designed to resemble the controls of an automobile. If the braking pedal is depressed as far as possible, not only is the maximum dynamic braking rate obtained, but the air brakes are applied by means of a mechanical connection with the pedal. Thus, should the trolley pole come off the wire and invalidate the dynamic braking, the air brake may be used. Furthermore, if, for any reason, the operator should remove his feet from both pedals, the power supply would be immediately cut off and the dynamic and air brakes applied to stop the car. Manual operation is arranged for by the use of a small handle in the center of the cabinet in front of the operator. This manual arrangement was added so that if the operator becomes tired using his feet, he can operate his car by hand. This arrangement also facilitates shifting in yards and backing when it is desirable for the operator

The Front End of the New Street Car.

to stand. The braking system is likewise equipped with a manually operated valve.

The trucks used on this car are the standard Timken No. 52 of steel construction. However, the Timken Detroit Axle Co. is now building special aluminum trucks of the same general design, and when these replace the present steel truck the weight of the car will be further reduced.

This new car is still in the experimental stage on the Pittsburgh property and has not yet been placed in regular operation. Refinements are, of course, still being made in various parts of the equipment of this new vehicle but the trial runs to which the car is being subjected almost daily give every reason for supporting the belief that the railway industry is slowly but surely perfecting vehicles which will meet adequately the demands of the traveling public in regard to comfort, speed, appearance, and safety.

More Powerful Engines for C & N W

What are said to be the world's largest and most powerful passenger locomotives of the 4-8-4 type are being put into service by the Chicago & North Western Railway. Thirty-five of them, designed in the North Western shops, have been purchased for use on limited trains and heavy freights, the first arriving just 81 years to the day after the arrival of the "Pioneer," the first locomotive to run out of Chicago. Both were delivered on October 10, the "Pioneer" in 1848, and the "Zeppelins of the Rails" October 10, 1929.

The first of these new Class H engines will make a continuous run between Chicago and Omaha, a performance now divided between three locomotives. It will be used on the Corn King, called by many the finest train in the world. It will be necessary to take water only at division points, Clinton and Boone. Interesting details show that the engine's unusual height, 16 feet over all, made it necessary to put the bell on the front instead of on top. The engine's wheel arrangement makes it a modified Mountain type. The driving wheels' outside diameter is 76 inches. Other technical facts:

Boiler

Type	Conical
Diameter O. D. 1st course	90 3/16"
Diameter O. D. 3rd course	100"
Working pressure	250 lb.
Fuel	Soft coal

Engine Truck Wheels

Diameter, front	36"
Journals	7½"x14"
Diameter, trailing	
Front	44"
Back	50"
Journals	9"x14"

Wheel Base, etc.

Driving	20'6"
Rigid	13'4"
Total engine	48'7"
Total engine and tender	91'1"
Length over couplers	103'4½"

Weight

(In working order)

On driving wheels	288,000 lb.
On truck, front	87,000 lb.
On truck, back	123,000 lb.
Total engine	498,000 lb.
Total engine and tender	818,000 lb.

Tender

Wheels, number	Twelve
Wheels, diameter	36"
Journals 6½"x12"	Roller Bearing
Tank capacity	18,000 U. S. gal.
Fuel	20 tons
Tractive power, engine	65,200 lb.
Tractive power, booster	11,300 lb.
Total	76,500 lb.

Equipped with Type E superheater, feed-water heater, stoker, three thermic syphons, power reverse, booster, one-piece cast steel cylinders and locomotive bed, train control, and air brake on all driving and tender wheels, with two 8½" cross-compound pumps. Boiler and machinery designed for 275 lb. working pressure. Tractive power engine with 275 lbs. pressure, 71,800 lbs. Tractive power booster with 275 lbs. pressure, 12,400 lbs. Total, 84,200 lbs.

—P & A Photo

This Is the Famous Dornier-X, Built at Friedrichshafen, 12-Motored Seaplane, Which Took Up 169 Passengers One Day Last Month. The World's Largest Airplane.

This Is the Question: Why Not Fly?

Too Many Parlor Aviators

By W. M. Pickford

AVIATION which, right now, appears to be undergoing a healthful process of reorganization throughout the country, if one puts faith in the official statements of government chiefs in the department of commerce, needs, more than anything else, the encouragement of men and women whose names are known wherever newspapers are printed, and that is pretty nearly everywhere.

And the best way to encourage the growth of air-mindedness, in the opinion of these same government gentlemen, is to do a bit of flying yourself. Speaking over a net-work of the National Broadcasting Co. one night not long ago, David S. Ingalls, assistant secretary of the navy for aeronautics, said people would not long believe in aviation if Lindbergh were to use railroad trains for his journeys.

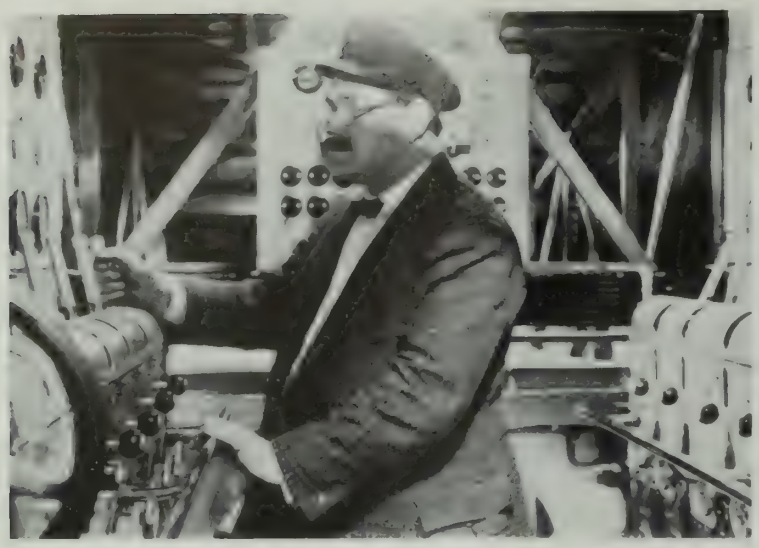
"How," inquired Mr. Ingalls, "can a man promote the doing of something he doesn't do himself? Could you imagine Mr. Winton, Mr. Ford, Mr. Packard, or other manufacturers of automobiles clinging to the old horse and buggy? It would be as absurd for the president of the New York Central to travel by the old ox teams, for the heads of the great transoceanic steamship companies to persist in the use of sailing vessels. In other words, he who is enthusiastic concerning aviation, regardless of what particular branch, whether he is manufacturer, operator, pilot or what-not, does seem a bit insincere if he himself fails to fly, not necessarily to pilot the plane, but at least to use the airplane as a means of transportion.

"I fly because that is the quickest and least obnoxious method of transportation. Always excepting the possibility of adverse weather conditions, something which the art of aviation has not as yet, but we trust and believe will eventually overcome, there is of course no question about the time saved by means of aviation. One goes between two points by a straight line, the shortest possible method, something which can be done by other transportation system only in a very few instances for any appreciable distance.

"I fly because I like flying. There is something of a feeling of complete freedom, of untrammeled movement, of extraordinary ease of mobility, that satisfies the desire inherent in all of us to be lord of all one surveys. There is a beauty of heaven and of earth that is only for those privileged to fly. There is the exhilaration, the sense of well-being and of power that comes to the skipper standing at the helm of his ship, to the engineer sitting at the throttle of his locomotive. There is the same pleasure as in driving an automobile on the open highway, but far more unrestricted.

"What a short time it has been since this first awakening in the conquest of a new element! It is but a quarter of a century since the Wright brothers first kept a plane aloft for a minute or two at Kitty Hawk, N. C., when practically no attention was paid to their startling adventure which opened up the limitless ranges of the sky to men who had been stumbling on the face of the earth for countless ages.

"What great advances were made during the World War when sets of aeronautical engineers vied with one another to produce aircraft more and more efficient, urged on by the fact that life lay for their fellow citizens in the superiority of their article. But even so, comparison of the present-day plane with that of the war-time plane leads us to appreciate a great peace-time development of aviation.



Wide World Photo

Mechanism of the Great Dornier-X Where the Engineer and Four Mechanicians Will Operate the 12 Motors.

"Thanks to the great development of aviation in this and in other countries it no longer takes men of extraordinary skill, ability and courage to pilot an airplane. Though not fool proof, the plane of today is far easier to fly than that of the past and the average person with normal physique and good eyesight should have no particular difficulties in piloting a plane, and once learned, there is probably no more fascinating and entrancing sport in the world and few that have once started have given it up."

Dornier Trials Successful

The most interesting and important news in aviation was announced October 21 from Friedrichshafen, Germany, where the long-expected trial flights of the great Dornier-X took place. This 12-motor flying boat, carrying 150 passengers, ten members of the crew and nine uninvited stowaways, 169 persons, remained aloft for more than an hour. The huge ship, constructed for transatlantic air service between Germany and South America, contains a large salon, 21 feet long and 10 feet wide, an American bar, a smoking room and cabins with steel furniture for 72 passengers.

Two sister ships of the "DO-X" are nearing completion, the company announced.

In the opinion of the airship's builders the successful flight definitely proves the practicability of gigantic airships of this type for regular passenger and commercial transportation.

The Dornier people have always contended that airplanes of this type were better fitted for transatlantic passenger service than rigid dirigibles, and now it appears they are seriously considering inauguration of regular passenger traffic along the commercial route for which the planes were built.

In spite of its tremendous weight, the Dornier-X made a perfect take-off and a perfect landing. Doctor Dornier, the builder, says the big flying boat has a higher degree of safety than any airplane yet devised. The three principal causes of airplane accidents, he says, are "pilots overburdened, motors overstrained, conduits and steering apparatus inaccessible."

Pilots, Doctor Dornier declared, are not only occupied in steering their planes, but they are also forced to observe many instruments and navigate at the same time. In most cases, he said, they are unprotected against bad weather.

Motors, he explained, are constantly driven at full capacity, and making repairs in the air is impossible.

Fuel conduits and control units, from his experience, are only incompletely accessible, and he has found that hundreds of forced landings are due to breakage in the gasoline pipe, which could not be repaired. Destruction through fire, Doctor Dornier declared, is a sad chapter in the history of flying, and most fires are caused by leaking tanks, from which the benzine or other fuel runs over the heated motors.

Innovations in his new giant flying-ship succeed, he believes, in overcoming these difficulties. The pilots in it are able to concentrate on flying, and they need not simultaneously be pilot, engineer, and navigator. An engineer is assisted by four mechanicians responsible for the technical work. The commander, with a first officer, directs the course and gives the orders to the crew. Nobody is overburdened. The motors in the DO-X have plenty of reserve and can be throttled about 40 per cent right after the start. Another important factor is the subdivision of the effect of the motors, heretofore unheard of, namely by 12 independent units. Formerly, if one of three of a maximum of four motors, with which planes were fitted, ceased to work, an immediate forced landing or the loss of one-quarter to one-half of the entire effect was the result. With the DO-X the loss would be only one-twelfth.

The pilot's room in the Dornier flying boat is in the front, the bright-

—Herbert Photo

The Largest Plane Ever Built in America, a Fokker Transport, Which Already Has Proved Its Air-worthiness. It Carries 32 Persons With Sleeping Berths for 16.

est room on the ship, owing to the large number of windows, which are arranged in a semicircle. Outside of two chairs and two gas switches at each side, there are only three or four instruments, including a compass, a balance apparatus for foggy weather, and a sign-board for the commander's signals.

With one switch the pilot is able to shut six motors off, vary the gas, or stop a particular motor. In case of emergency, or while landing, all 12 motors can be stopped by pushing a single knob.

Thus the steering is just as easy as with a small two-motored plane, and the steering wheel is so light that a child would be able to move it. Only one pilot steers the ship at a time.

Next to the pilot's room is the cabin of the commander and the assistant navigation officer. This room is separated from the pilots only by a screen which permits the commander to observe the pilots and the ship's nose, to determine the course.

The adjoining room is the most important of all. It contains the main switchboards, the machinery for controlling the motor units, etc.

The engineer in charge will be assisted by four mechanicians, who will be constantly occupied in attending to the 12 motors and the accessories. To get into the motor gondolas, men must crawl on all fours through the wings, but after reaching the gondolas they will be able to stand upright or sit on the ladder. The number of wires concentrated in each gondola is surprising.

A small door leads from the gondola to the wings and gives the men access to every part of the motors, propellers, etc. Each gondola contains two motors of nine cylinders each. A four-pieced propeller is at each end of the motors, one in front of the wings, the other behind.

Behind the machinery room is a radio station for one operator. This brings the crew up to ten men. The lower deck contains space for fuel tanks, provisions and sea equipment.

With This Contraption the Wright Brothers Amazed the World in 1903 At Kitty Hawk, N. C., by Flying 40 Miles an Hour. No One Believed They Could Stay Up.

Air Express Volume Grows

Approximately 5,845,000 pounds of air-express were carried in the United States during the last three years, according to Harry H. Blee, chief of the division of airports and aeronautics information, Department of Commerce.

"Through the use of air-express, merchants in cities removed from the style centers have been able to offer the latest style creations days in advance of their competitors," Mr. Blee said.

In addition to style merchandise many other commodities are being shipped by air, including machinery and machine parts, dies, builders' hardware, fruits, vegetables, cut flowers, dry goods, newspapers, jewelry, advertising cuts and mats, currency and bullion, motion picture films, plans and specifications for building projects and other items of a perishable or valuable nature.

Transport planes operating in the United States are now flying approximately 75,000 miles a day or the equivalent of 90 trips around the world every month, while during the first six months of the present year 45 transport companies flew planes of various types a total of 8,000,000 miles, an increase over the corresponding period of 1928 of 300 per cent. As 33 of these air transport companies are equipped to handle express, Mr. Blee said that the foundation is already laid for an organized, nation-wide air-express service.

The Luxurious Farman Biplane No. 180 for European Airways. Carries 25 Passengers; Tandem Motors, 125 Miles An Hour; Cruising Radius 1500 Miles. Every Seat May Be Converted Into Sleeping Space. No Uppers.

Texas has more railroad mileage than any other state in the Union. It has 23,000 miles of track, of which 16,500 miles is main line. The building of new track in Texas is constantly going on, due, no doubt, to the fact that its natural resources are being rapidly developed. The state has 168 million acres of land, but 32 million of which are under cultivation.

EDISON and his STORAGE BATTERY

One of a Series of Historical Sketches Presenting the More Significant of Mr. Edison's Series of Experiments from 1898 to 1908 in His Search for a Dependable, Economical Storage Battery

(Reprints of previous issues will be sent on request)

Edison Obtains Physical Ruggedness

WHEN Mr. Edison decided upon nickel and iron as the active materials for his battery, after building more than 20,000 experimental batteries, he found that these metals were not commercially available in the required chemical purity.

Without hesitation he built a chemical plant at Silver Lake, N. J., and launched another series of experiments numbering more than 50,000, to discover a means of producing them.

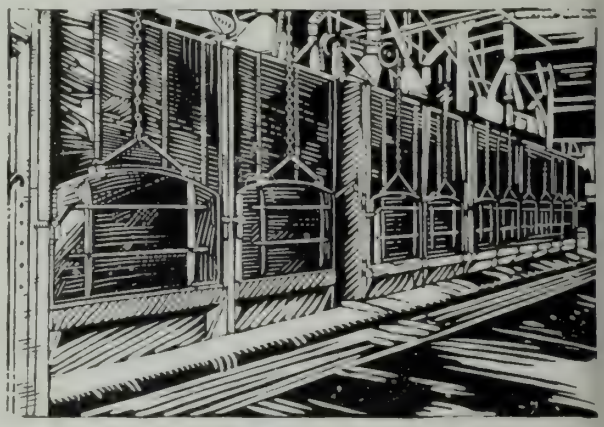
During much of this time, it was Mr. Edison's habit to work 16 and 18 hours a day. The press often commented upon these long hours.

To some, nature appeared unkind to require so arduous a search before revealing the secret of a good storage battery. Yet Mr. Edison maintained that on the contrary nature rewarded his search graciously in many ways.

For example, he recognized two properties as essential to his battery:

1. Chemical reversibility
2. Physical ruggedness

To gain one without the other would have been futile. Thus having found the former in the reaction of nickel and iron, he found that nature had graciously endowed these same metals with close chemical relationship to steel.



The production of iron by hydrogen from a previously purified iron oxide in the present Edison plants, one of several steps originated by Mr. Edison to obtain for the Edison Battery iron of a purity found nowhere else in the world.

He found also that, as the reaction between nickel and iron was the simple one of alternate oxidation and reduction, he could use an *alkaline* electrolyte to carry the oxygen back and forth between the plates during charge and discharge. And an alkaline solution is a recognized preservative of steel.

Thus he was enabled to employ steel plates, steel terminals, steel containers, steel covers, and, in fact, steel construction throughout.

Edison *Steel Alkaline* Batteries give Econo
Multiple Unit Control, Sign

EDISON STORAGE BATTERY COMPANY, ORANG

Steel in Transportation Equipment

SINCE 1898, when Mr. Edison began the experiments that resulted in a storage battery of steel construction, steel has largely replaced wood in American railway cars. Today, according to the *Car Builders' Cyclopedia*, "the use of all-steel underframes has become universal for practically all classes of freight cars," while "passenger train cars as now designed for use on American railroads are practically of all-steel construction."

As the use of steel cars has increased, evidence of their superior durability and dependability has almost steadily accumulated from year to year. Delays by reason of breakdowns have been reduced. Safety to passengers has made enormous gains. Loss or damage to freight has actually declined despite the increase in freight business that has occurred.

The jars and jolts inseparable from the service of transportation equipment, illustrate one reason why the steel construction of Edison Batteries contributes to economy and dependability in car lighting.

The widespread interest in the celebration this year of the fiftieth anniversary of Edison's invention of the incandescent lamp serves to suggest how greatly good lighting is appreciated—in railway travel as elsewhere. Good car lighting at all times throughout the run relies in no small degree upon the *dependability* of the storage battery in the car.

Steel in Storage Batteries for Car Lighting

That steel construction should similarly increase the durability and dependability of storage batteries is little more than is to be expected. Steel construction should reduce the need for repairs. It should simplify maintenance. It should contribute to longer life and more dependable lighting.

That this is actually the case is amply confirmed by the character of the car lighting service rendered during the past seventeen years by Edison Storage Batteries—the only storage batteries of commercial importance in the United States that employ steel construction.

d Dependability in Railway Car Lighting,
g, and Motive Power Services.

TRADE MARK
Thomas A Edison

J. , , , BRANCHES IN PRINCIPAL CITIES

Modern Machinery Used by the Pennsylvania Railroad's Treasurer in Preparing Checks for Dividend Payments.

When the P. R. R. Pays a Dividend

WHENEVER the Pennsylvania Railroad Co. pays a dividend, which is every few weeks, we believe, the machinery and the operators shown in the picture — which, we hope, is nearby—are very busy indeed. Before this machinery was invented it used to require two weeks and much tiresome labor to get the dividend checks ready for mailing. The name and address of the stockholder, the number of shares he owned, and the amount of the dividend had to be typewritten on every check. Back of the typewriter days it was done with a pen. The new machine, using embossed metal plates, does all of this work automatically, and in addition signs the checks in facsimile for the treasurer, prints upon them a serial number, the dividend rate and the date. This machine prints 3600 checks and stubs an hour and is capable of completing the entire dividend payment in two days of continuous running.

The picture shows a room in the treasurer's office suite at Philadelphia. The important machines mentioned are in the right hand corner. The tiers of boxes along both walls contain the embossed metal plates used in the machine, covering the names and addresses of the stockholders and the number of shares held.

Rails Over Quick Sands

Across the sandy wastes of Central Australia there is being built a second transcontinental railway, the North-South connecting Darwin, in the Far North with Adelaide, the capital of South Australia. The East West transcontinental has been in operation for some years.

On level country the whole way, construction work on the North-South line has been comparatively easy. One of the most difficult jobs was the bridging of the Alijubukina creek over a mile of shifting sand. The creek, really a big sandy river, was dreaded by teamsters, and formed a serious obstruction to the construction of the overland telegraph line.

A similar dry river which the railway engineers have had to bridge is the Alberga. The rail track crosses three other so-called rivers — the Hamilton, the Stephenson and Finke. These ordinarily are great beds of white glistening sand. In a heavy, wet season, enormous volumes of water come down, hold the sand for a time in suspension, and move vast masses of it about. The water sinks so quickly that a few hours after a storm no water is visible, but in places quicksands remain for days.

Cattle, horses, camels and smaller stock have disappeared in these sands. Bores have shown over 100 feet of sand in places, with fresh water below.

Union Freight Station for New York

The first union freight terminal to handle the non-perishable, less-than-carload shipments, inbound and outbound, of the 11 trunk-line railroads serving New York City will be erected within the next 15 months by the Port of New York Authority on the West Side somewhere between Canal and Twenty-first streets. The announcement, the result of more than a year of study of the project, followed a report to the Port Authority that construction and operation of such a freight station had been unanimously approved at a meeting by the presidents of all the railroads involved. The exact site of the terminal and its cost, although decided upon, are not yet ready to be made public, it was said at the offices of the Port Authority, because all the land needed has not yet been acquired.

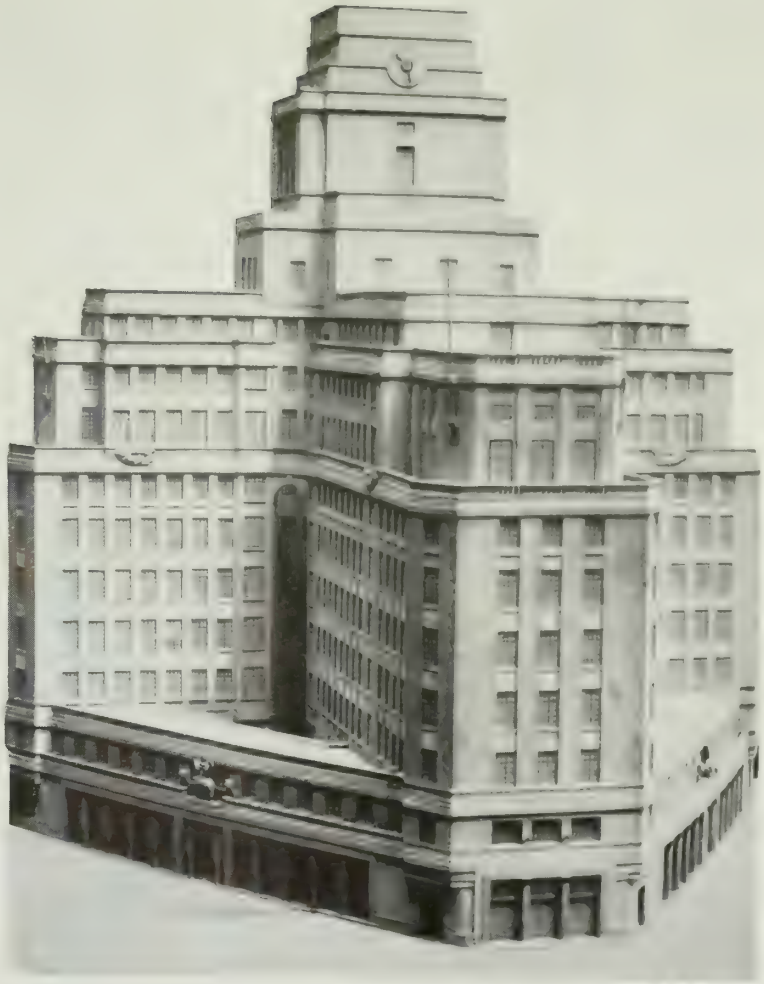
The building and its site, the cost of which a preliminary estimate, since revised, set at approximately $9,000,000, will be financed by the sale of Port of New York Authority bonds similar to those which made possible construction of the New York-New Jersey bridge between Fort Washington, Manhattan, and Fort Lee, N. J.

The terminal plan is designed to make it unnecessary for shippers and receivers of less than carload lots to send their trucks to perhaps a half dozen piers or railroads to drop or pick up package freight. With the union terminal in operation this class of freight will be carted to the terminal by trailer trucks or by containers carried on motor trucks and there sorted for delivery to the receivers, who will call with their own trucks. On outbound shipments the process will be reversed.

Trust him little who praises all, him less who censures all, and him least, who is indifferent about all.—*Lavater.*

How Motor Bus Lines Are Operated By the Rio Grande

By Willis Parker



—P & A Photo

Metropolitan District Railway and Omnibus Terminal Just Built in London. This Is a Model of the Structure.

GOOD ROADS and motor bus lines open a new avenue for service to the railroad companies as evidenced by the use of this transportation medium by the Denver & Rio Grande Western Railroad in Colorado and Utah. The additional, or new use, is that of taking the railroad passenger direct to the scenic attractions the railroad has long been advertising.

For example: The railroads have for a number of years advertised Pikes Peak, but the nearest any railroad went to the summit of the famous mountain was six miles. We are excepting the cog road that goes up the peak. The literature distributed throughout the East to tempt the public to make a journey to the West not only suggested seeing the peak, but also urged the travelers to stop off and either climb it or reach the summit via the cog road.

The Denver & Rio Grande Western advertised the scenic beauties of the Royal Gorge, and, while it is true that the trains did pass through the gorge and some of them stopped at the hanging bridge to permit the passengers to get off and enjoy the wonders of the towering walls, one of the most magnificent views is obtainable from the top where a motor highway from Canon City has been constructed for the convenience of motorists. At present, there is under construction one of the highest bridges in the world, one that will span the famous gorge and permit motorists to cross from one rim to the other.

Over in the southwestern part of the state is the Mesa Verde National Park with its interesting and ancient ruins of the cliff dwellers. The railroad misses the park by 15 or 20 miles. Yet, the public has been urged by the railroad to visit the region.

Through the medium of bus lines, the Denver & Rio Grande Western is able to take the public direct to these interesting points instead of hauling passengers to within striking distance and figuratively dumping them off the trains to make their way the best they can. Last summer, the railroad ran motor vehicles to the summit of Pikes Peak. As soon as completed, the company will operate buses over the bridge, taking the passengers off the trains at some point, such as Colorado Springs or Canon City, and putting them aboard the train at points on the other side of the chasm, and buses will take passengers from the trains into the Mesa Verde National Park.

Four systems of bus lines already are operated by the company, three in Colorado and one in Utah. One system operates from Denver to Colorado Springs and Pueblo, thence east to La Junta, south to Walsenburg and west to Canon City. The maximum length of the line is from Denver to Pueblo and east to La Junta, 181 miles. It is known as the Rio Grande-Southern Motorway, Inc. Except for the portion from Pueblo to La Junta, the bus line parallels the company's railroad line. Originally this was started by persons independent of the railroad which now has acquired control of the route by a purchase of a majority of the stock, the former owner retaining an interest and remaining as manager.

Over in the San Luis Valley the line is known as the Rio Grande Motorway, and operates between Alamosa and Salida in two branches, one going by the way of Saguache, which never had railroad service, and the

—Wide World Photo

A New Steam-Driven Bus Shown Recently in New York. It Is Said to Be More Comfortable and Safer Than Any Other Type; No Gear Shifting; No Clutch.

other by Monte Vista. The line passes over Poncha Pass, and since it was established it has been possible to dispense with passenger service over the railroad line between Alamosa and Salida. In this case, too, control of the line was purchased after it had been established and proved practical. The former owner retains an interest and is the general manager. In this case, the company is giving service to some communities which had never had railroad service.

Over on the western slope is the Western Slope Motorway Inc., operating buses and trucks. From Grand Junction to Glenwood Springs, trucks are operated. Truck and bus lines extend from Grand Junction to Hotchkiss, via Delta to Bowie. Buses and trucks are operated south toward Durango, but the trucks do not attempt to negotiate the high mountain pass between Ouray and Silverton. The bus line extends, however, clear into Durango, making a total of 181 miles from Grand Junction to Durango. The truck lines handle small packages of freight and express.

The line in Utah is known as the Rio Grande Motorway of Utah, Inc. It operates from Salt Lake City south to Provo, Nephi, Richfield and Marysville, and is headed toward the Bryce Canyon and Zion National Parks, wonderful scenic attractions in Southern Utah, which may well be developed by the railroad and the service rendered by its bus lines.

It is significant that all of the motor bus lines operated by the railroad company are profitable. The railroads have learned a lesson, no doubt, and that it is not to acquire unprofitable lines which might be difficult to operate or to sell.

While it is true that the acquiring of bus lines frequently enables the railroad company to dispense with one or two or more train schedules which are far more costly to operate, it is far more interesting to see to what extent the bus lines may be used to develop the scenic attractions, and permit the railroad company to collect the total revenue from carrying a passenger from a definite point on its rail lines to and into the scenic attractions in its own territory.

A Story of Progress

Seventeen years ago this Chamber of Commerce of the United States was called into being at the request of the then President of the United States.

In the attempt to dramatize the history and progress of this American commonwealth, the mind falters before the broad sweep of actual achievement. The task is to state with simple truth the real marvel of its social and economic conquest and to present with restraint and sober appraisal the possibilities of a national and an international leadership in an unprecedented era.

In industry claimed as both old and new, we have the continuing marvel of the automobile. The one million cars owned in America with the birth of this Chamber, have grown to 25 million. It is the chief reliance of steel and plate glass and leather and rubber. A rival itself of railroad transportation, it nevertheless provides the equivalent of four weeks' exclusive employment in every year of all the railroad facilities of this country for itself and its associates alone.

In transportation, we have doubled in a decade the tonnage of railroad freight, and then have paralleled our railways with a new army of truck drivers that now almost equals the total of railway employes. We have, besides, enrolled an army of 600,000 chauffeurs, and made the open road not only the servant of industry but also the door to health and pleasure.

In passenger travel, we have restored to the open road the romance of changing view, the hospitality of wayside inns, and our cities welcome their visitors through the sightly boulevard, not the untidy back alley.

In airways, we have cut the four-month transcontinental journey of the covered wagon to the 46-hour air service, coast to coast, and made every inland city a possible world port.

In communication, we have, during the life of this chamber, increased our telephones from seven million to nineteen million, and by the miracle of ocean radio have brought to every single instrument the access to 28 million receivers, out of the world's 33 million.

In public discussion, we have built the audience of 60 million radio hearers for a single voice, and public questions are today presented to our citizens with the intimacy of the fireside discussion.—*Julius H. Barnes, President, U. S. Chamber of Commerce.*

The Worm Turns

In the Decatur, Ala., city court one day last month, the operator of a truck was held liable for a railroad crossing accident, and judgment for $13,500 was given the widow of a locomotive engineer killed in the wreck. The railroad company also has a suit for $14,000 pending against the truck owner. The accident in which Engineer McCleskey and C. B. Benton, driver of the truck, were killed, occurred at Statham, on the Seaboard Air Line Railroad, in February, 1924.

According to the testimony, the engineer blew a warning whistle when approaching the crossing, and several persons shouted warnings, but Benton drove on the tracks in front of the train. The locomotive was turned over and damaged to the extent of $14,000, according to the pleadings of the Seaboard Air Line.

A Modern Terminal at Jersey City

The Open Door to World Markets

By W. J. Kennedy

THE FIRST unit of what eventually is to be one of the largest, most perfectly equipped warehouse and terminal properties in the port of New York, on the Jersey side, costing probably $25,000,000 when everything is finished, is well under way. At the end of October, when this article was in preparation, the formal opening of this first section had been announced for May 1. In a few concise lines, the new plant is to have and be:

A rail-to-keel warehouse and distribution terminal served by the Pennsylvania Railroad, and three piers.

At Exchange Place, Jersey City, directly across the North River from Cortlandt street, New York, adjoining the Pennsylvania station.

A 300-foot tunnel from the marginal street to Exchange Place.

Within a ten-minute drive of the Holland tunnel.

Buildings of fireproof construction with the additional protection of sprinklers throughout the entire plant.

Special features of the terminal are to be:

The latest type of loading and unloading devices.

Ten passenger and twelve freight elevators.

A complete warehouse and distribution service.

Twenty-seven million cubic feet of space.

Negotiable and non-negotiable warehouse receipts.

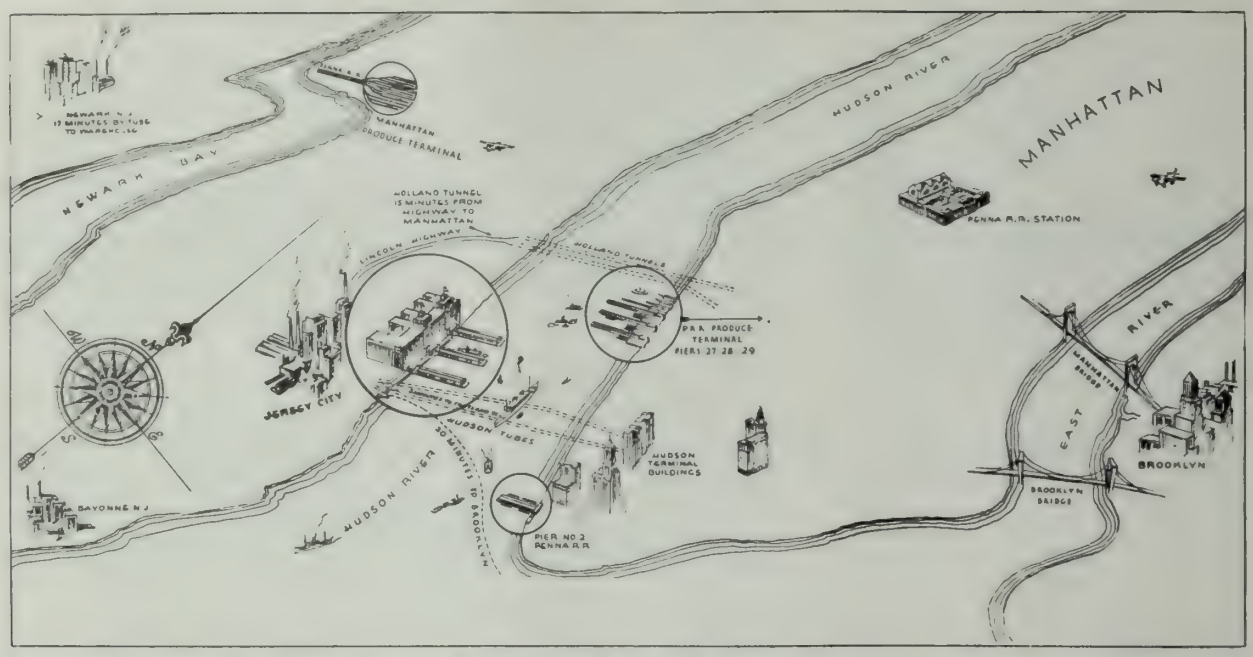
Pool car distribution, bonded warehousing, general order, manufacturing, package basis, general warehousing, offices and display rooms, trucking.

F. H. McGraw & Co., 51 East 42nd street, New York, are the general contractors on the project.

If you have never been in New York and therefore know nothing about its 780 miles of harbor frontage; if you have never tried, as a business man, to get goods to or from the island of Manhattan, you are scarcely likely to realize how much of a thrill this article would give old Cornelius Vanderbilt and Jake Van Deuzen, ferrymen of 1810, or even Henry Hudson, long before any one of them was familiar with the struggles of the first American port. No city on an island has an easy time in the handling of its goods in or out, and the founders of New York, as well as the settlers who followed them down through the generations, were no exception.

Comforts and conveniences, after all, are largely matters of contrast or comparison. You must have known hardships before you can value properly the facilities now offered for the happiness of human beings and the expeditious transacting of modern business. From the rough and tumble days of early New York with its Vanderbilts and its Drews and its Van this and Van that to the push a-button times of scientific developments in transportation is a long journey, more than 300 years, and never a day has passed, perhaps, when the brains of the wisest men have not been trying to find better and better ways of doing the things to be done in this great rail-to-keel terminal.

Someone said, a few years ago, that the Port of New York, like railroad rates, was merely an accumulation. So rapid was its growth, almost from the first trading in 1614, that proper and intelligent control was out of the question. True, there were men in those early times who had the foresight to see the need of competent management, just as James J. Hill foresaw the need for railroads as he built them, but those who could look ahead were unable to convince the boneheads of their day, so that right up to the present the port, and this means the entire shipping nation, has suffered because of inadequate facilities, congestion such as that of the World War days, quarrels among municipalities, jealousies over one thing or another, governmental obstructionists, and what not. The real nucleus of the port and its best accommodations, insufficient as these



Situated at Exchange Place, Jersey City, the Pennsylvania Dock & Warehouse Terminal Commands a Strategic Position in the Heart of the Port of New York.

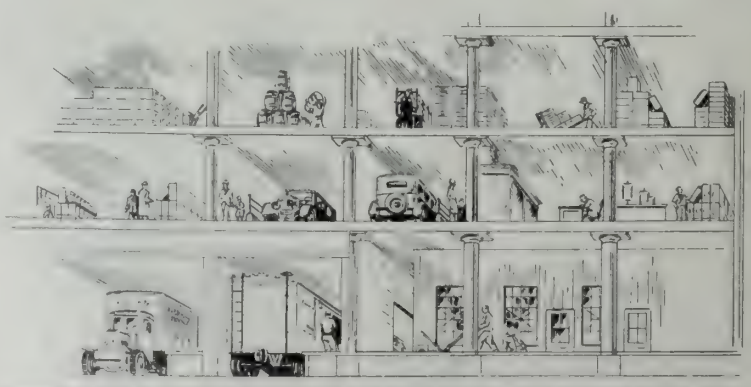
have been, have been provided almost wholly by railroads, and usually against the strenuous opposition of one interest or another on the New York or the Jersey side.

Men familiar with the perplexing situation know that the Port of New York is congested because heretofore no constructive effort has been made to develop warehouse and terminal facilities on the Jersey side of the Hudson River. The New York side permits of no further expansion in enterprises of this kind, the only available space centrally located being on the west side of the river. Situated at Exchange Place, Jersey City, directly across the Hudson River from Cortlandt street, New York, the Pennsylvania Dock & Warehouse Terminal of this article occupies a strategic position commanding unusual accessibility to New Jersey, Manhattan, Staten Island and Brooklyn, and affords rail and steamship connections with the market places of the world.

From the viewpoint of the shipper and the manufacturer, this location is, without doubt, the most favorable in the port of New York. Due to its location on the mainland, the new terminal offers unexcelled storage and transit facilities, including a station for the less-than-carload shipments. The structure is fireproof and in addition, as already noted, is equipped with a sprinkler system. The enterprise is, in every sense, a rail-to-keel warehouse, served by the Pennsylvania Railroad and adjacent to that company's freight yards. Railroad sidings will run at the north and south sides of the building and at the end of three piers ranging in length from 865 to 913 feet, all of which will accommodate ocean steamers. As shipping and receiving platforms inside the warehouse are on the same floor level with cars ease is assured in the handling of merchandise.

With abundant means for receiving and shipping, the completed project will have adequate facilities for unloading vessels and freight cars and for making local truck deliveries and shipments by rail and water. The first unit of this enterprise consists of three buildings and three piers. The first of these buildings will have six million cubic feet, four million of which will be devoted to cold storage, while the entire unit will provide 27,000,000 cubic feet. Eight stories throughout, the three buildings comprising the first unit are being constructed of all reinforced concrete with the flat slab type of construction. It is built to sustain a live load of 200 to 300 pounds to the square foot. The complete unit will be 970 feet on the water front, or equal to about five city blocks, by 300 feet deep and served by three piers. The first building will be constructed as an L, being 212 feet in the front and 160 feet in the rear. The front section of this building will be three stories in height devoted to warehousing, offices, stores, marginal streets and manufacturing, while the remainder of the building will be given over to cold storage. The complete unit will have ten elevators for passengers and 12 for freight.

Provision is made at the rear of the building for a team track yard



Shipping and Receiving Platforms Are On a Level With Freight Car Floors.

This Is the Architect's Conception of the Fine Union Station Costing About $600,000, Now Being Erected At Atlanta, Ga.

with 16 sidings extending to Washington street, a public thoroughfare about 800 feet distant running parallel to the building. From this street a ramp for taxicabs will be built along the side of the building and up to the second floor where it will turn and traverse the entire length of the unit directly over the marginal street. The ramp also carries a sidewalk giving access to the second decks of the piers and passenger elevators to the building.

The warehouse adjoins the Pennsylvania passenger station on the north. Passengers from the Hudson and Manhattan tube elevators at Exchange Place, leading into the Pennsylvania Station, may walk through an enclosed section of the piers directly to the second floor of the building. To facilitate truck deliveries of merchandise a 300-foot tunnel is being built from the marginal street to Exchange Place. The entrance to the Holland tunnel is within a ten-minute drive of the warehouse. The first completed unit will have a power house, machine shop, watchman's quarters, hospital, restaurant, offices and stores.

It is believed the cold storage warehouse unit represents a step forward in the industry of refrigeration and in the preservation of perishable goods. Architectural and engineering principles of the most modern character have been incorporated. Cork insulation of more than customary thickness, so applied as to assure a perfect seal, will be installed. Refrigerating machinery and coil arrangement represent the latest achievement in engineering practice, adequate in capacity and with ample emergency units. Appliances are being installed to maintain the positive air circulation, correct relative humidity and constant unvarying temperatures. The location of freight elevators, loading platforms, service trucks and other facilities have been carefully worked out so that economical handling at top speed will be possible.

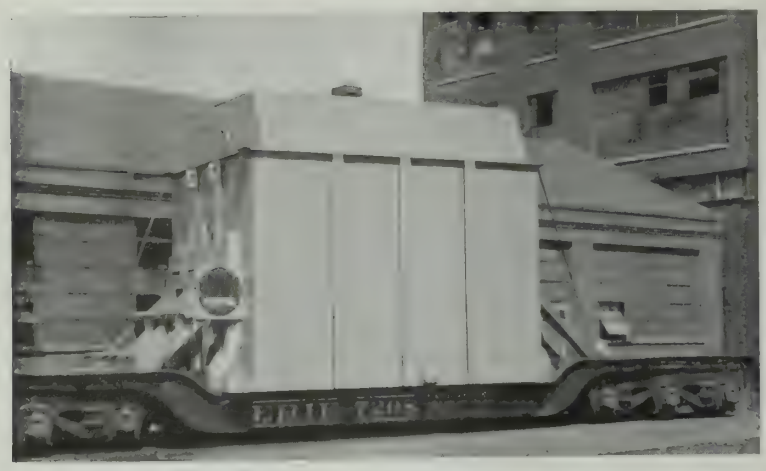
An attractive feature for manufacturers is the plan for lofts so constructed that shafting may be slung direct, the company's power house supplying electric energy, water and gas. Well lighted and ventilated offices and display rooms also are provided. Freight can be stored by the package or a manufacturer may rent space outright and handle his own distribution. Customers storing at the warehouses may secure negotiable and non-negotiable warehouse receipts on merchandise in storage. Merchandise on spot in this terminal can be turned over quickly. The convenience of maintaining offices and display rooms at the terminal is a feature that many manufacturers appreciate. The time of transportation to and from Manhattan, Brooklyn and Staten Island is short and the whole of northern New Jersey, including Newark, is easily reached.

The facilities described are being built by the Pennsylvania Dock & Warehouse Co., of which William J. MacMillan is president. The company's offices are at 25 Church street, New York.

New Station for Atlanta

The Nashville, Chattanooga & St. Louis Ry. is constructing a passenger station in Atlanta, at a cost of about $600,000, with a view of providing modern passenger facilities in keeping with the ever-growing importance of that city. Recent grade separations left the old passenger station, built at track level, completely submerged by the viaducts surrounding it, and the necessity for raising it to the new street level became immediately apparent. Due to the lack of room on the old site a new location north of Forsyth street where ample space was already in possession of the railroad was selected, and plans were worked out for a high level station over the tracks with mail, baggage and express facilities at track level.

"Without means of free and rapid communication a democratic continent is an impossibility."—*Sir Arthur Keith.*



One of Four Giant Transformers Handled by the Erie in August for the Westinghouse Elec. & Mfg. Co., From Sharon, Pa., to Roseland, N. J.

The Mysteries of Cost Accounting

By E. R. Woodson
Railway Accounting Officers' Assn. Secretary

Since their origin, or for more than a hundred years, railroads have been determining costs for managerial needs; that is, for supervisory or administrative purposes. Those costs are ascertained by processes analogous to those used in commercial and industrial practice. On different railroads, managerial ideas regarding costs vary, and this could be said with equal force of industrial and commercial concerns. On the railroads, the same fundamental differences in plant, location, output, etc., are encountered as in industry and commerce, and create, on the railroads, the same lack of uniformity in cost accounting for managerial use that exists with commerce and industry. Broadly and generally, railroad cost accounting, considered from this viewpoint, has at least kept pace with commercial and industrial cost accounting, and it is not inconceivable that the railroads have pioneered on some phases of the subject.

The making of railroad rates is so interwoven with economics as to make cost accounting, for this purpose, an effort to adapt or alter some principles of economics, rather than some accounting idea. To say it another way, the use of the word "accounting" in cost accounting does not make it accounting.

Railroad rates are a fundamental part of the economic structure of the country, and any basic change in rate making would correspondingly alter that economic structure. Costs (if they were ascertainable), as a controlling measure of railroad rates undoubtedly would have economic effects of a serious and far-reaching nature inasmuch as all railroad rates would then be brought to a deadly level.

The economic factors recognized in railroad rate making are such as competition, character of the traffic, what the traffic will bear, value of service to the shipper, distance, value of commodity, volume of traffic, cost of transporting, etc. It is to be borne in mind that cost is only one of the factors. Due to the difficulty or impossibility of determining the other factors, there has developed a dependence on costs or so-called costs and a demand for costs or so-called costs in rate cases that would appear unwarranted by the uncertainties all too frequently inherent in such compilations, and the expense incident to producing those figures in the face of their controversial nature and the unwillingness or inability of regulatory bodies to accept such figures as controlling and impelling.

The fundamental step in railroad cost accounting is the separation of operating expenses between freight service and passenger service, under rules prescribed by the Interstate Commerce Commission. Direct expenses are allocated to the service, freight or passenger, to which they apply. Indirect or common expenses are apportioned upon some arbitrary bases. At this point, it is customary to say the railroads do not differ from any number of industries that apportion indirect expenses on some arbitrary basis or bases. Such a viewpoint complacently ignores the fact that this is only the beginning of the railroad cost accounting problem. From the not altogether simple beginning of assigning operating expenses to freight or passenger service, to arrival at the end of the rainbow, the goal of determining the cost of transporting every commodity, railroad cost accounting would ramify, spread out, and grow, so as to make the expense of alarming proportions, to say nothing of the impossibility of utilizing the staggering volume of data that thus would be produced.

Speaking before the National Association of Cost Accountants, an authority on commercial cost accounting said that three representative firms in different lines of industry found the cost of cost accounting to be 5 per cent of the direct labor expenses. That measure has had confirmation from another and altogether different source. Applying 5 per cent to the direct labor expense of the railroads would produce a tremendous sum of money. The experience of one railroad with one formula for determining some so-called costs indicated that if the formula were applied generally, the expense of making the compilations would run into many millions of dollars, the results being controversial and uncontrolling, notwithstanding the thoroughness, the judgment, and the experience that went into the preparation of that formula and its application.

If indulgence in a generality is permissible, it may be said that the composite experience of the railroads, for many years, would indicate that the cost of any cost accounting plan, currently and continuously applied by the railroads, would be prohibitive.

The situation regarding railroad costs for managerial use being satisfactory, railroad costs not being controlling for rate making, the expense of currently and continually providing railroad costs for all commodities being prohibitive, no practical and economical plan of cost accounting for railroad rate making ever having been suggested; but assuming that transportation costs will continue to have a place in rate cases before regulatory bodies, it may properly be asked, what can and should be done in that connection? The constructive answer is, special studies of what may be involved in the particular case. Special studies are the only practical, economical, and efficient means ever suggested for producing costs for rate purposes. Special studies may be controversial, but so would any general plan of cost accounting. Furthermore, any known method of currently ascertaining so-called costs for rate making would not eliminate special studies, and would, therefore, be superimposed on them and tend to make confusion worse confounded.

An address delivered before the Baltimore & Ohio Railroad Accounting Association, Baltimore.

Editorial Comment

The Dead Years Are Forgotten

EASTERN shippers, and those in the Chicago territory also, it is said, are objecting to proposed rate increases on the peculiar ground that the net operating revenues of the railroads are likely to exceed the prescribed 5.75 per cent. How men with this kind of mental equipment can succeed in business is difficult to comprehend. Have they forgotten the lean years when the return was far below the prescribed figure, when year after year the stockholders received nothing? Do these shippers imagine they could face the Supreme Court, one of these days, with clean hands, and get anywhere with their argument? Is it an argument they would apply to their own business?

The Changing Ways

Day after day, here and there, all over the country the branch lines are disappearing. Unless you keep a record of applications for abandonments the extent of the movements, the change from trains to motor buses, will not be realized. Three or four miles in one place, ten or twenty or fifty in another, 75 or 100 miles in a day's news, the rapidly growing total is astonishing. Usually the applications describe conditions now quite familiar everywhere: bus lines and trucks have taken the business, the branches have been operated at a loss the only traffic, freight or passenger, being handled during bad weather when roads are impassable. Nearly all such proposed abandonments are opposed by the people who object to living in railroadless towns and seem to want the railroads as scenic adjuncts paid for by someone else.

Practically all the new construction, as might be expected is in the West, and most of it in the Southwest, the leading states in this respect being Texas, Oklahoma, New Mexico and Colorado. The Santa Fe System alone applied in October for authority to build 380 miles of line in those states.

Advertised by Friends

One of the encouraging signs of the times is the frequency with which one sees display advertisements drawing attention to facilities, comforts and conveniences for the traveling and shipping public provided by railroads here and there. The latest demonstration of this form of sound business common sense is provided by the Atlantic National Bank of Jacksonville, Fla., one of the great financial institutions of the South. In this instance the bank describes the new station of the Seaboard Air Line Railway at Williston, Fla. Here is a bank whose officers are pleased to admit their close interdependence upon the successful operation of railroads, and sufficiently aware of the fact to spend money telling the public about it. Florida railroads, the bank says, are the Empire Builders, pioneering in the opening of virgin territory, developing the state's agricultural and industrial resources, ready always to help when help is needed, as it has been in times past, and asking only that the sacredness of the more or less vanishing net return be acknowledged. All big business men know their own prosperity is measured by that of the railroads. The way to express your appreciation is to talk about it. There are few mind readers at large.

Don't Laugh; It May Be True

Max Valier, inventer of the rocket car of which the reading world has seen many lurid dispatches from Berlin, has a rival in the person of Professor Herman Oberth, who has devised a liquid air mail rocket. However, before the professor will be permitted to shoot his rocket through the air to the United States, as he hopes to do, he may have to give assurances to the American government that the life and property of American citizens will not be endangered by his experiment.

The "Berliner Lokalanzeiger" quotes Dr. Jacob Gould Schurman, the American ambassador, as saying he did not know what guaranty Washington would request after Professor Oberth's application to the embassy here, but the question would be put before the cabinet by President Hoover. At such a meeting the secretaries of war and of the navy would have a special voice in the matter, the ambassador was quoted.

It is no longer safe or sensible to say that anything is impossible. We used to talk that way 25 or 30 years ago about automobiles but one must step lively nowadays to escape them. We used to say airplanes never would carry freight but they are doing it every day; a new line for that traffic on the Pacific Coast was organized ten days ago and will be flying regularly next month. It may be a long time yet before railroads will take off any trains because of the competition. Few persons imagined four or five years ago that air transports would even carry many passengers but one has to reserve space today ahead of time and regular 30-hour service between New York and Los Angeles is just around the corner.

Those who have seen Oberth's contrivance say it is a 40-foot long iron double tube affair, having a copper coat and containing about 160 pounds of liquid oxygen. Professor Oberth expects it to attain a height of 30 miles, although he regards 45 miles as not beyond reach of possibility.

The rocket will contain a barometer, thermometer and hydrometer for taking meteorological measurements in hitherto unexplored strata of the upper air. These instruments, which will operate independently, will be attached to a parachute fastened to the head of the rocket and arranged to tear itself loose the moment the rocket starts to fall.

If this experiment succeeds Professor Oberth plans to construct a rocket engine for carrying mail, which he believes can be hurled from Europe to America in exactly half an hour.

Professor Oberth is a physicist who has been known to the German public hitherto as scientific adviser in the production of U. F. A. film, "The Maiden in the Moon," which, to our way of thinking is the only thing against him.

Training Railroad Men for Minor Jobs

Some careful thinker whose name, unfortunately, was not with the valuable address he made a while ago, said that although railroads have been improved much we have not been able to improve upon the human factor. That factor, this man said, should go to school; that is to say, to overcome the limitations of the rank and file of railroads, there should be training schools. That does not mean chairs in universities, or highly technicalized institutions. The technical part of the business will always take care of itself. Give a man a technical education, which easily can be obtained, and he needs no further training, beyond that of experience. But the rank and file of the railroad, who mingle with the public, who make or unmake the reputation of the line, gets little or no training. So far as the speaker knew there is no institution that will or can train men for minor positions on railroads—positions from which they might graduate to others.

"The education of a railroad man never ends," said this speaker. "Many a good man who has the railroad virus, but who cannot stand the gaff necessary to go through the preliminary grades and give him the requisite experience, should be taught the theory of the business; also, to some extent, the practice. Purdue University and some others teach railroad mechanical practice. My academy, in addition, would teach them the currency of courtesy. Good address has carried many an indifferent man rather far. On the other hand, many talents have been overlooked because the bark of roughness has obscured them. This does not always apply to railroad employes, but they are rather amenable to the principle.

"As a rule they are better tempered and better mannered than any other class of men in the world. When you think of their irregular hours; of the fact that railroads run every hour in the twenty-four, every day of the year; that holidays and anniversaries simply must be blotted off the successful railroad man's calendar; that they are on duty constantly, regardless of their own health or that of their families, it is a tribute to their unfailing loyalty to the interests that they serve and to their own equilibrium that they are as good as they are."

Air Crashes and News Values

According to Herbert Brucker of the Review of Reviews, the chance of a fatal accident to an air passenger is only one in 4000 trips. Of the 384 persons killed in airplane accidents last year, only 13, or 3.3 per cent, were passengers on authorized air lines. Most of the others were stunt flyers, amateurs, and army and navy men engaged in experimentation. Motor accidents killed, 27,097 and train and train service accidents killed 6144, but the killing of nine persons by a train accident due to a cloudburst in Colorado had less effect upon the popular imagination than the loss of eight lives when a transport plane crashed into a mountain in New Mexico.

Brucker blames newspapers for giving more prominence to airplane than to other classes of accidents, but that is because his sense of news values is not so fully developed as his skill in handling statistics. Other classes of accidents have not the same news interest, but every newspaper will be prepared to publish the interesting fact that only 13 out of 52,934 air line passengers were killed last year.

The Wonders of Gum

The National Association of Chewing Gum Manufacturers asks the Interstate Commerce to have its product placed in the second class for rate purposes. It is a violation of the commerce act regulating such things, the gum makers say, for the express companies to put candy and its allied commodities on the second class list and gum on the first class. Gum, the makers says, is confectionery, has high food value and can not be regarded as a luxury. "It has many favorable transportation characteristics not possessed by candy." One of these, not mentioned by the complainants, is that when you chew candy a while you swallow it, but when you're through with a gob of gum you stick it under the seat, or drop it where the folk across the aisle will step on it.

Gum ought to pay first class rates. It spends millions for advertising, most of it on bill boards and otherwise beautiful rural scenery; it has paid for Catalina Island—in all the world no trip like this—it has produced baseball clubs, gigantic office building, marvelous homes and estates, yachts, solid silver, automobiles, antiques, old masters, comforts, joys—all from five cent pieces. It has given, is giving and doubtless will long continue to give contemplative exercise to millions of persons who think with their jaws. Gum ought to pay double first class rates for its rides.

When the Coolies Strike

You may not have great sympathy for strikers who deprive you of some creature comfort, but you must feel a thrill of kindliness for the coolies of Peiping—which used to be Pekin—in their struggle for existence. You have to realize, of course, that the ricksha coolies have provided the chief transportation for China for goodness knows how many thousands of years; their trade was handed down to them by their fathers; they know nothing else, and probably could learn nothing else. They have been a happy, busy, laughing, chattering feature of Chinese cities through the ages. Until street cars were introduced over there no one could get about without the coolies' service, and even now no traveler would think of missing a ricksha ride.

But the street cars came a few years ago, and the coolies' earnings fell alarmingly. You understand the situation a little better when you know that in Peiping alone there are about 75,000 ricksha men. They have a union, too, a product of our western civilization. This union bestirred itself the night of October 22 so energetically that 60,000 coolies turned out and wrecked every street car in the city,

and this means completely wrecked in China, motors, machinery, everything. This was a thoroughly civilized demonstration as we over here know, but we are sorry just the same for the ricksha men.

Seeing Things at Night

Office holders, especially in Washington, always have been noted for their ability to see things where everything was blank for the rest of the world, but in this respect Secretary Good surpasses any man whose name comes to mind at the moment. It must be a wonderful thing to look about, particularly when one is making a speech, and see golden dividends, bright prospects, hope eternal and everlasting glory for whatever brand of hokum one chances to be promoting at the time.

Six railroad presidents, doubtless as a courtesy and because they wished to listen to the secretary's address as a business precaution, attended a meeting, early last month, in Pittsburgh in which Secretary Good was the principal speaker. With a degree of charlatanism beyond belief, even in a politician advocating governmental subsidies for inland waterways, which seems to make such gentlemen reckless whenever they speak of the subject, the secretary seized upon the presence of the six presidents as his excuse for saying, "The presence here tonight of these six railroad presidents is sufficient proof, if any were needed, to establish the fact that railway and waterway transportation are cooperative and are not competitive; that water transportation will only supplement what the railways cannot give."

If the six railroaders were astonished what did they think when the secretary told his audience the railroads are now running at full capacity, and that it would require "abnormal" extension of facilities to care for the business to come from 40,000,000 Americans who are to arrive in the next 25 years?

Secretary Good played upon the credulity of his audience by declaring transportation could be provided more cheaply by using these "added facilities," meaning artificial waterways, than by rail, an example of sophistry quite familiar to shippers and railroad men for many years, but disproved everywhere in this and every other country wherever it has been tried. Look at the tax bills.

Railroad presidents doubtless will learn from this incident just how careful they should be about where they go lest, by their presence, they seem to give sanction to propaganda harmful to themselves and to the people.

Of course no railroad executive, and no thoughtful business man believes the tax burdens of the people ever will be reduced to former levels; certainly a reduction will not be announced while the government continues to pour hundreds of millions into waterways as it is now doing. The nine-foot channel in the Ohio River from Pittsburg to the Mississippi, the completion of which President Hoover helped to celebrate during his westward trip, cost the people $118,000,000. Perhaps the President and Secretary Good can tell us how much this will save in freight charges, whom it will benefit, and how much more the people must pay to maintain it. But of course they can; what they neglect to say is that inland waterways, like government ownership of railroads, are the stuff of which political dreams and platforms are made. It is doubtful whether Mr. Hoover or the bad Mr. Good ever heard the late Eddie Foy's popular song, "Seeing Things At Night." One verse went this way:

When I lay me down to sleep,
I wonder if dreams come true?
I see such things in my slumbers deep,
I wonder if dreams come true?
Some things dark and some things bright,
I often see in the quiet night,
And oft-times I wake with a terrible fright,
I wonder do dreams come true?

The People Must Pay

At least one governmental service the people should pay for without complaint: the postal; and this, it will have to be understood, includes the air mail. It was not the intention of congress in the beginning of such service that it should be a profit-making enterprise. It never has been, and it never will be. The postal service was designated to keep the states and their people together by means of easy and inexpensive communication. If it were not for such constant communication the Republic might not long exist. And more and more, as time passes, the air mail will play an increasingly important part in the good work. If anyone makes a profit out of the business of providing this air mail service it should be the contractors, and they won't make very much.

The air mail is at present, and it doubtless always will be operated at a loss just as the other postal service is operated. The demands for the new service, however, are far in excess of the postoffice department's funds, and as a result no new routes can be approved until after June 30, 1930. Approximately $5,000,000 is appropriated annually for the transportation of air mail. With additional appropriation of $5,000,000, or $10,000,000 annually, the department could comply with requests from applicants for new air mail services. In the situation hope has been abandoned for new routes unless congress provides the necessary funds.

It is possible, however that a conference to be held in Washington early this month will result in lower rates of pay for carrying air mail in which event it is possible that the department may balance its books at the close of the fiscal year ending June 30, 1930. It is hardly likely, however, that a sufficient amount will be lopped off the pay of the contractors to enable the department to establish new routes with its savings.

Coolidge on O'Fallon Case

What Calvin Coolidge thinks about the railway situation after the O'Fallon decision was set forth in the course of an interview with the former President on the occasion of a recent visit to Washington. Mr. Coolidge said:

"I think the future outlook of affairs is very encouraging, and one of the reasons for that is the confidence that the railroads have in their future prosperity. That is due in part to the encouragement they received from the decision in the O'Fallon case. That made it evident that they were to have fair consideration in the treatment that they were to receive from the government. The railroads are so important an industry in this country that when they are prosperous they carry prosperity to many other allied industries—basic industries, almost as basic as agriculture and manufacturing."

Largest Bridge Plate Girder Ever Placed by the Boston & Maine, Being Unloaded From Three Cars. Sixteen of These Girders, Each 126 Feet, 7 inches, Weighing 65 Tons, Are Going Into a Bridge Over the Connecticut River Between Westboro, N. H., and White River Jct., Vt.

The "New Yorker" Rides the Cab

We rode to Albany in the locomotive cab of the Century this week, and back, by moonlight, on the Empire State, through the kindness of a friend who has a title in the New York Central. Bob Butterfield was at the throttle. He is senior engineer of the line and a lion in locomotive circles.

We learned that engines rarely kill animals, fences being efficient nowadays, but frequently pick off birds. They smack into the front of the locomotive and stick there. Engineers are instructed to turn pheasants and such in to the game warden at the end of the run. Sparrows don't matter. Crows like to sit on the rails until the last minute and then hop off. This irritates engineers. At night the locomotive men dim their headlights when meeting other trains, politely, as do some motorists. They also flick them at friends in switch-towers. On the big new engines (four thousand horse power, three hundred and thirteen tons delivered) nobody does any manual labor. They are equipped with automatic stokers which the fireman regulates nonchalantly with a handy little valve. A shovel is kept aboard, but as a precaution only; the stoker might get stuck. The engineer used to have to be a strong man to swing the giant reverse lever. Nowadays a small wheel which twirls easily does the trick. He presses a button to blow the whistle.

Engineers for the Century are picked for their gentleness with the air brakes. Butterfield told us that slamming trains around is a sign of carelessness or incompetence. He has written a monograph on the subject. The Century is slowed down beyond Albany, we were told, so that the curves in the track won't interfere with dinner. Ordinarily trains don't slow down for curves. The speed is 70 miles an hour on "unrestricted" stretches, but many signs along the way order a slower rate. Most of them read, "Reduce speed to 50 miles an hour." Modern engines ride easily because they are heavy and well-balanced. Locomotives vary greatly in their performance but the enginemen don't get sentimental about them. Conversation in a cab is a little easier than in an airplane. Most of our talk with Butterfield was on politics. He voted for Smith.

The Central's main line is equipped with automatic train control. If an engine runs by a signal set against it, the air brakes go on automatically and all the engineer can do is wait until his train stops and then climb down ignominiously and reset a valve on the side of the tender. If he is on the job, however, he can run past a block by pressing a lever called the forestaller. Upon such occasions a toy whistle blows just over his head, to remind him that he has entered dangerous trackage. It took 24 years to perfect the automatic mechanism and millions of dollars to install it.—*The New Yorker.*

Air Rates Will Be Lower

"It should not be a matter of more than a few years," says W. T. Studebaker, a Western Air Express passenger agent, "when airplane tariffs will be as low, and possibly lower, than rail rates. This will come about through lower costs in producing planes and lower costs of operation on the part of the air transport companies. Planes capable of carrying a greater number of passengers are being built, and within a year or so they will be in popular use. It is obvious that a company using the 32-passenger Fokker plane which is now in production will be able to transport 32 persons cheaper than it can 12 in the present day equipment."

New Pullman Used by Rock Island on Its Golden State Limited, Rocky Mountain Limited, and Iowa-Nebraska Express. Notice the Windows in Upper Berths. Also the Windows Have Limousine Rollers, Making It Possible to Open Them Without An Axe.

Illustrations by Assd. Screen News

William Hugh Coverdale

A Great Canadian Business Man, Engineer, Railroad Director, Art Collector, Farmer, Whose Amazing Career Supplies Material for a Sermon for Believers in Luck.

Little Stories About Big Men

"They do me wrong who say
I come no more
When once I knock and
Fail to find you in."

IN THE NEWS of the day October 11, was the announcement that the directors of the Seaboard Air Line, meeting at New York, had elected William Hugh Coverdale, senior member of the firm of Coverdale & Colpitts, chairman of the board. Mr. Coverdale succeeds Robert L. Nutt who had expressed a desire to assume duties less strenuous, and in the future will serve the board in an advisory capacity. L. R. Powell, Jr., president since the death of S. Davies Warfield in 1927, will continue as the company's chief executive.

An old Turkish proverb says Luck loves a virtuous man. An English philosopher, true to his unemotional race, declares, however, that Luck, good or bad, is just a synonym for the right kind of judgment. What your decision may be after you have read this Little Story of William Coverdale no one knows, but one thing is certain: You will have some very decided opinions about these dead and gone sharks of wisdom, because in rather an unusual way the tale has elements not found in any we have had up to the present in these chronicles of life.

Words, you know, are curious things. Some of us imagine we know a lot about them, a little bit of pardonable egotism based on the intimate relationship we have had with the language for many years. Then, too, there is the additional very important fact that our bread and butter and an occasional chop or roast have been plentiful or scarce according to the

How Old Man Winter in Canada Was Defeated by the Construction Engineers. The Manoir Richelieu, Built by Making An outer Frame Shell, Heating the Interior, and Then Building the Hotel Inside.

facility with which we handled the tools of our trade. We think we know the meanings of words, but every now and then a grave doubt bobs up on the mental horizon. You who have been reading these narratives of human activities for the last three years know how we have worried over a special group whose daily use has made them trite. What do they mean: Luck, Opportunity, Success, Romance!

What do these four words mean? You can't put the question to a successful man without stirring up another word and endless argument—work. Luck, Opportunity, Romance, Success, you are told, are impossible without work. Naturally, the chap who has never seen Luck, was sleeping soundly when Opportunity knocked, wouldn't know Romance if he met it, and of course isn't on speaking terms with Success, doesn't cheer up very much at the mention of something he has battled with all his life. He has never known anything else but work, with the result that he has another word on the tip of his tongue the moment you talk about the Coverdales—breaks. The successful man, he insists, had the breaks, things broke right for him. You might talk yourself black in the face but you couldn't convince this lad that the successful one had to toil like a galley slave for the kingdom he won in the end. It just isn't in him—it—the quality that made William Coverdale. It was the breaks that made him what he is today, and he hopes they're satisfied.

It isn't a matter to be dismissed in a couple of paragraphs. We want to know something about the route this gentleman used on his journey up from hardships. Without such a guide the story might as well not be written. For our own part, after a rather careful survey of the case, we had just about decided that if it hadn't been for Luck, aided and abetted by Romance and old man Opportunity, he never would have reached first base. Looking about for support in this attitude, and glancing hopefully at our well-stocked bookshelves, we saw the Bible, a volume for which, like all editors, traditionally we have the highest regard. But in these sacred pages, much to our astonishment, we learn that the race is not to the swift, nor the battle to the strong, the bread to the wise, riches to men of understanding, nor favor to men of skill; but that time and chance happeneth to them all. Notice that word *chance*? So here we are just about where we started a few moments ago. What then, if anything, did Luck do for William Hugh Coverdale, Canadian business man, financier, railroad director, steamship president, art collector, engineer by adoption, builder, farmer—what did Luck do for him?

Twice in this man's extremely interesting career, twice when he didn't have enough money to wad a .22 revolver, when a casual observer might have thought him headed for the far-distant back seats of society—what a policeman calls the sticks—someone, and Mr. Coverdale never has discovered who did it, mentioned his name to the president of something or other, and the sun broke through the clouds. Big things began to take place. Money rolled into his outstretched hands so fast that he had to rush wildly about in search of kegs and baskets; or, if not precisely in such distracting volume, at least in large and succulent portions.

Ah, you cry gleefully, if that wasn't Luck just what, for goodness

sake, was it? And those within whose capacious brains throbs the wisdom of the world come back at you with the logical reply that no one ever mentions the name of a man who isn't prepared to deliver the goods. The mysterious person who pitched William Coverdale's name into the ring, if you will permit the confusing metaphor, knew he could and would handle the job he had turned his way. Luck, we are assured, is a word for gamblers, loiterers along life's highway, for Weary Willies asleep at the switch. For those who are waiting and willing to work there is the comforting thought that some day, somewhere, someone will mention their names in a kindly and helpful way.

Having taken this stand, it may be just as well at this point to offer some qualifying testimony, as lawyers say. We turn to railroad history. In this field, as in others, there is a well-founded belief that you can't keep a good man down. Maybe not, but his arrival at the top may be seriously delayed. The story of the building of the Canadian Pacific Railway might have been a vastly different tale if Lord Strathcona hadn't discovered Jim Hill, who had previously found William Van Horne who, several years before, had picked up one Shaughnessy, a clerk on the Milwaukee in the town made famous by something you can't get now unless you know how. Where might Charles Schwab be today if Andrew Carnegie hadn't heard his name mentioned as a good workman? Naturally, Van Horne and Shaughnessy weren't sitting up nights wondering whether Canada was going to build a railroad. Someone had to tell them about it; and Strathcona had to tell Hill who had the good sense to tell him that if the dominion wanted a real railroad it would better send down to Milwaukee for a man to build it; a very fortunate thought.

So, when a certain railway president wanted an energetic, worthwhile consulting engineer for a big construction job, some one with plenty of good sense mentioned William Coverdale's name to him as the man he needed; if he hadn't done this, whoever he was, that railway president might have had whiskers nine feet long before Coverdale's name would have come his way. It's simple enough, whether it's Luck or Opportunity, Romance, or What Not.

Main Lobby of the Manor Richelieu at Murray Bay, Showing Many of the Pictures in the Collection of Canadiana, Selected and Arranged by Mr. Coverdale.

Perhaps you have heard the story about the dear old lady who had a way of exclaiming, whenever she heard a bit of news, "I want to know." That was the foundation of William Coverdale's fortune. He may not have thought about it in just this way, but nevertheless his determination to know more and more about things in general kept him moving toward the top. He seems, too, to have hit something at which he did not originally aim. When he was graduated from Geneva College at Beaver Falls, Pa., in 1891, he took with him the degree of Bachelor of Arts. Now, this kind of weapon may be flaunted recklessly about for years around railroad offices without ever attracting enough favorable attention to warrant a decent place on the pay roll, and the astute young William apparently discovered the fact early in life. Indeed, he went to work for the Pennsylvania Railroad in the engineering department doubtless because of that discovery. Somewhere we have seen it recorded that he accepted a position there, but as he shone as a rodman, level and transitman for two years we have gained the impression that what he did was get a job and keep it, meanwhile studying hard to learn everything possible about a profession he should have taken up in college. Still, as we shall show a little farther on, his art came in eventually of great value.

To follow William Coverdale year by year through all the multifarious triangulations of his journey would be like writing a copy of a time card — a happy reference, too, because he just kept on going somewhere, usually on time, always with his head up, eyes shining, lips firm. He must have been singularly adept, too, because he was busier than a bird dog. In the first four years after he burst upon the scene the record shows him to have been resident engineer on important railroad construction jobs, making detail drawings and estimates of costs, and all that kind of thing. If you know anything about civil engineering you know that this kind of work is not,

commonly, connected with art in the public mind, which proves how goofy the public is about some things. Young Coverdale hadn't been with the Pennsylvania very long before he discovered that in passing through college he had missed quite a number of things he needed to know. His natural interest in art, however, was a helpful thing. Lettering, he learned, was one of the prime essentials of engineering, and he had to learn it from A. to Izzard, which is quite a trip. Just as Abraham Lincoln had burned up many a ton of candles reading borrowed books, determined to get an education, so did William Coverdale do without a wink of sleep night after night working through the hours until breakfast with India ink and pen, making letters, learning the thing he needed to know. Then he hustled down to the Pennsylvania engineering office to work all day. But it was the spring-time of life. He was doing the thing he wanted to do, the thing he liked, the thing at which he was determined to succeed, and this is a combination no discouragement can beat.

One of the Grain Carriers of the Canada Steamship Lines.

It isn't a comforting thought, perhaps, but history has a disconcerting way of proving that boys whose fathers died when their sons were young, boys who have, therefore, been obliged to get out into the world and start something, have provided some of our most thrilling reading. It was that way with young Coverdale. He was born at Kingston, Ontario, and was going to school there at 14 when his father died. His mother decided to take the boy to Mansfield, Ohio, where he had relatives, relatives of the old Covenanter breed with strict traditions about children and their training; and when he was 16 she managed, by strict economy, to send him to Geneva College at Beaver Falls, Pa., which was then the denominational college of that sect, in the hope that he might incline his ear to understanding and his heart to theological knowledge.

He was 20 when he was graduated in 1891 at or about the head of his class with the degree we mentioned, and with a strong desire to learn something about architecture and civil engineering; he also had ideas of enjoying a prolonged holiday which didn't seem to take very well with older relatives.

The family uncle had a few things to say about the disagreeable subject of work. Just what, he desired to know, did the young man intend to do? William had no detailed plan in mind so he declared he felt a call toward railroad engineering. The idea seemed to meet with approval for the uncle fixed it with the Pennsylvania Railroad to give him a job. That was in January, 1892. The boy stuck with the road for nine years. The amazing part of it is that in 1893 when he was only 22 the company sent him to Chicago to look after most of the construction work it had to do in connection with the World's Fair, which proves how thoroughly a certain old Swedish draftsman in the engineering office had taught him what he needed most to know. The story goes that when the World's Fair turmoil was at its height there were 79 men in the chief engineer's office, and when it was over only four remained: the chief, the assistant, the old Swedish draftsman, and young Coverdale. The Pennsylvania hadn't taken any chances. Railroads usually don't do such things. They knew he would do his work. He had, as he now says, come up through the mud.

Then came several years of practical railway location and construction. "I scoured Ohio from Lake Erie down, and from the Ohio River to the level plains of Indiana, for low grades and cheap haulage," Coverdale said, talking over those days. "I worked like a dog, day and night. They were not very encouraging years, but I knew afterward they were valuable to me. Every man must go through preparatory stages like that if he is going to be equipped to go far. When 1897 came along I found myself assistant engineer of the Pennsylvania. I was 26 then."

"And six years out of a course in arts?"

"Yes," he admitted.

At this point the Chicago track elevation project began, an undertaking of extreme difficulty, and here occurred a thing that seems unbelievable. Young Mr. Coverdale was assigned to the job for the Pennsylvania, on six years' work and his nerve.

"I went at it," he said. "We had to lift four main tracks up 20 feet in the air, adjust yards, switches, terminals, enginehouses, the whole system, to the new elevation. We had to put in bridges, subways, new streets, pavements, sewers, wires, pretty well tear the city apart. We did it," he added gently, "without stopping a train."

Truly, this young man had "come up through the mud," and Chicago recognized it. A Chicago newspaper reporter who was sent to hear the eminent engineers of the various railways describe the progress of the track elevation in which they were engaged went back to his office and wrote something like this: "When your representative entered the hall he saw a tall, thin-faced young man whom he took to be the elevator boy. He turned out to be the speaker of the evening, and not since William Jennings Bryan has there been such a display of eloquent discourse."

The thin-faced young man was Coverdale from Canada telling Chicago how the thing had to be done. And his salary for the Chicago track elevation job was $125 a month. Then came a break and with it a test of character and judgment. Rather than go on indefinitely with railroad construction work young Coverdale decided to leave the railway and accept a position with a firm of consulting engineers and contractors in New York, but this association proving uncongenial after two years more of

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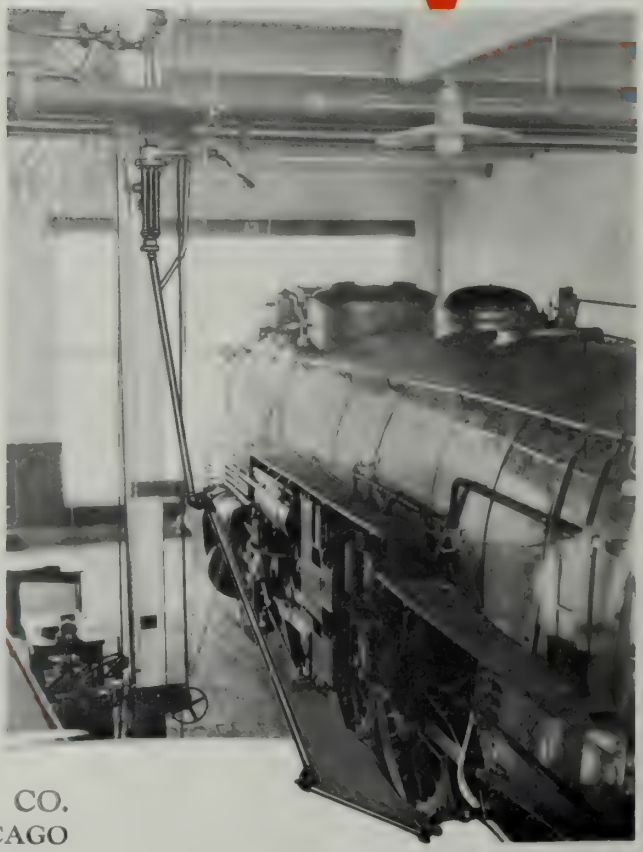

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construction work he quit and went to Europe. That sounds pretty easy. He went abroad, humbly and cheaply, as he says, and one can do without many things when one is alone, as he was on this tour. He traveled all over Europe, afoot most of the time because he couldn't afford any other kind of transportation, stayed five months, learned much, and got back to New York in the autumn of 1903 with an English sovereign, which is about $4.86 in money as we know it, and an Italian lira, equal to a trifle less than 20 cents if everything is right with Mr. Mussolini. That was all the money he had, but what was much more important, he had an idea! He would borrow five thousand dollars. Try it some day.

"I decided," says Mr. Coverdale, "that I must start at once to work for myself. It was the one good thing my experience with that New York firm had taught me. I decided to come out at once as a consulting engineer. I had no money, but the day I got back to New York I wrote to three men who had known my work on the Pennsylvania, and told them my plan. I needed five thousand dollars to start. Three days later I had the money."

He rented a small office. He hired a stenographer. There was nothing for her to do, but he hoped she would soon be busy. "It looked pretty dark," he says now. "My rent was $1,500 a year. I knew nobody in New York. I had no resources. Nothing but the $5000 debt and a lot of hope and confidence. The stenographer and I just sat there and waited. For nine days nothing happened. We just sat and watched the telephone. And suddenly one afternoon the thing rang! It sounded like a fire alarm."

It was the president of a big railway company who asked him to be one of a board of three consultants on a million dollar construction job! Someone—he never could learn who did it—someone had mentioned his name.

What do you call it—Luck or Romance? What if he hadn't been right on the job, near the telephone—he and the stenographer. Some way or other we can't keep from thinking about the little stenographer—she must have been little—and what she said and did, and all such things.

"So, that gave me a start," says Mr. Coverdale, ignoring our rhapsodical outbreak. "The other two engineers and I went out for several days on a special train. It looked like a prolonged and elaborate job. We came back to New York and had a talk up in the hotel bedroom, for all one afternoon. I listened, and at last plucked up nerve to say that if they would let me write the report I would have it ready next afternoon. They thought I was crazy, but I persuaded them to let me try. I went back to my office, worked all night, and the next afternoon submitted the report. It was all right, too. Not a word had to be changed and the railway people were so pleased that several jobs followed. I got $1,500 for that first job and I was walking on air. Things seemed to be breaking fine for me. During the next few years, from 1903 to 1907, my income climbed up to $5,000 a year, to $10,000, to $13,000 to $17,000. Success seemed assured. In fact, it had arrived."

But, as the old-time melodrama would have it, there were dark days ahead for William Coverdale. Men of mature years will never forget that time—the panic of 1907 that cast a pall over the nation for two dreary, heart-breaking years — days when banks offered prettily-printed certificates to customers instead of money, a senseless time when men seemed to lose their heads, figuratively, and business slumped to the bottom. Coverdale, inheriting a strain of thriftiness which was to stand him in good stead, had saved his money because it was the perfectly wise thing to do. But notwithstanding this canny forethought he was to learn much about poverty and hunger before good times came again, the importance of keeping up a good front, of whistling when the stomach was just an empty feeling, the wisdom of holding on when the ship was about to sink. Men who had these qualities survived to reap a golden harvest in brighter days, and Coverdale was among the lot. But not until he had suffered grievously.

"I had saved my money," he said, reminiscently, doubtless with much inner satisfaction, "and now while it lasted—it saved me. For two years there was nothing to do, no business; idleness, overhead eating away the foundations; but I decided to stick it out or starve. I nearly did starve."

Keeping his office open, maintaining a front, ready for the sound when Opportunity should knock, eating now and then—these took the savings, and inevitably one day he was broke. For appearance's sake he had continued to show up at the Engineers' Club. To give up this last grip on respectability, he said afterward, would have been to acknowledge himself down and out. Finally, one day, with just a nickel and three one-cent pieces in his pocket, Coverdale bought a sack of peanuts and an apple for dinner.

Then, once more, someone mentioned his name!

Of course, all you believers in Luck and Getting the Breaks and the Romance of Big Business will smile at this point, forgetting the fundamental fact that the man who mentioned the name knew, as did that other one, years ago, that Coverdale was prepared and competent to do the thing he was assigned to do.

"A well-known Canadian steel company wanted someone to appraise its plants and properties," says William Hugh, smilingly, "and someone mentioned my name. I never did learn who did it. I came back from the steel plant with a check for $5,500 as my fee. I remember it well. It was a big yellow check. I sat down that day at a drafting table, because an ordinary desk wasn't large enough, and spread out all my bills. I wrote out over $5000 worth of checks for everything I owed, and drew the $200 that was left. I was clear with the world again, and there was a job waiting for me in Duluth. I went there that night."

That $200 was all Coverdale had to show for his years of hard work, except for the knowledge he had gained, and this must go down as profit. From that day he has never been idle. Men now mention his

Alabama City Plant of the Gulf States Steel Company.

name every day and always with pride. Two hundred dollars worth of education. From that day his professional income alone never has been less than $100,000 a year, and it has soared up to several times that sum. From consulting engineer he blossomed out as a fiancier. A financier, it should be remembered, is a gentleman who makes two or more dollars for himself where only one existed before for someone else. If this isn't quite clear to you members who continue to believe in Luck, you may now consider Mr. Coverdale's description showing how one changes from this class to that.

"The first real money I ever made," said this Canadian builder of useful things, "was in the Southern Iron & Steel Co. of Alabama. It was in bad shape and I was consulted. I wrote the report. I believed there were possibilities in the company but nobody else would have anything to do with it. The bankers called me a nerve specialist and not an engineering specialist. So I backed my judgement by investing in it myself and became, in fact, its largest shareholder. I bought it at one, two and five dollars and I've seen it at $182 a share since then. We've become investors in a lot of companies in the same way and now control several of them. I can't remember all."

Don't you believe it. He remembers every one of them. He has, indeed, such a good memory that he went back to Canada, and rescued the Canada Steamship Lines which seemed to be headed for disaster when the World War closed, examined its affairs so thoroughly that he was invited to become president, and took the job. This company, he decided, had no chance in ocean trade, and a floating debt of $7,000,000 seemed to support his opinion. But money was to be earned in fresh water shipping, so all the ocean equipment was scrapped or sold, a loss of ten millions was recorded, and in the mysterious way peculiar to such big organizers, a new start was made. In 1925 two fleets were bought for $12,000,000 cash—doesn't your mind go back to those peanuts and the apple?

"We're all right now," says Coverdale. "Twelve million dollars. All the banks were willing to help. Five years ago they wouldn't look at us." Over twenty millions in improvements also have been added in that time.

When a man's success in this world changes him from an ordinary hustler into a financier, one of several very important things is certain to happen: Either he will develop mean and miserly instincts or he will realize, as so many big men on this continent have done, that money is merely a trust and he the trustee. If the larger view prevails the man does things he longed to do all through his lean and hungry years. No thought of retiring enters his mind. Old ideas come to life, old half-forgotten dreams and plans, hidden away in the closets of memory for a favoring day; the hobbies of youth, denied him for lack of the wealth that now is his, are within his reach.

In his youth, you remember, William Coverdale took an arts course. We had almost forgotten it in tracing him through his engineering days, but it comes back in a lively appreciation when we see the hundreds of beautiful paintings, art objects of world value in the wonderful Manoir Richelieu at Murray Bay. And then you learn that all his life he has been a collector of beautiful things, although for many years he garnered nothing much except experience and overdue bills. You find him, if you are fortunate, on his farm near Kingston, and your heart glows with human understanding and sympathy when you learn that this farm is the only thing that hasn't been a profitable plant. You could have warned him years ago—but the blessed old farm doesn't have to pay. It is just a home and a very beautiful one, too. You find him there enjoying the things a cultured man likes to own and share with others, and you wonder how it is possible for him to have a business in New York at 52 Wall Street, Coverdale & Colpitts, a name long connected with rescues of defunct properties, reorganizations, receiverships, railroads, steamships, and what not, and then you remember the long distance telephones, the radio, telegraph, fast trains, all the impedimenta of modern day living.

He doesn't seem to be worrying much. People who work for and with him say he never grows tired, that he has a marvelous vocabulary well suited to golf which he doesn't play, and that next to his collection of Canadiana at Murray Bay his boat is the chief joy of his life. He has a house on Fifth Avenue but he prefers Le Moines Pointe—his farm of 450 acres along the shores of Lake Ontario. As he was 40 before he married he has a fine collection of well arranged opinions of his own, as well as collections of rare books, ship models, arms and armor, tapestries, pictures and furniture, to say nothing of Staffordshire china. All in all he is such a human kind of man that you almost forgive him for wearing shell-rimmed glasses and carrying a stick.

A visitor gains a fine idea of this Canadian business man-engineer-farmer and financier in the story of the old Manoir Richelieu we mentioned a moment ago. The original structure burned a year ago and Mr. Coverdale went up to view the ashes. Three days afterward he had directed the staking of the site for a new hotel, and about that time hit upon a good excuse for doing some more plain and fancy collecting. The new Manoir, he decided, must represent the spirit of the Eighteenth Century New France. To make guests value properly that picturesque period in Canadian history he hit upon the scheme of having a collection of Canadiana which would be hung upon the walls already rising out of the ruins of the old Manoir.

Beginning with the New Year Mr. Coverdale began an intensive search for pictures interpreting the romantic past. When the new Manoir opened in June he had 800 pieces framed and more than half of them already on the walls in places he had personally selected for them, and he now has more than 1300 pieces. The hanging of pictures in a three or four-room apartment frequently is productive of heated moments. The hanging of hundreds which had to hang in a definite relationship to one another was a colossal task over which he sweated and swore fervently while he screwed in hooks, cut wire and climbed ladders. The result justifies the presidential perspiration.

The largest picture in the collection is an enormous canvas showing Columbus before Ferdinand and Isbella. It is a striking composition by the Hungarian artist Van Brozik in which the queen is seated on a slightly raised regal chair while her attendants are placing on the table her caskets of jewels. Across the table stands Columbus, a white-faced, intense figure in black, pleading his cause and enthralling the queen with his plans for sailing westward to reach the East. The picture hung for 30 years or more in the Metropolitan Museum, New York, before Mr. Coverdale succeeded in acquiring it.

Probably the rarest and costliest picture in the collection is a print of Wolfe issued in the year after his death and now hung in the Murray room. Three other intensely interesting portraits, by A. Sherriff Scott of

(Continued on Page 42)

What a simple reason is back of the popularity of these Velmo Upholstery Velvets:

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Little Stories

(Continued from Page 38)

Montreal, are copies of old pictures of General Murray and Cardinal Richelieu, and a very charming conception of Helen de Boulle, the wife of Champlain. But of exceptional importance, however, was the commission Mr. Coverdale placed with C. W. Jeffries for two mural paintings in the west gallery, overlooking the river. These show the landing of the first French seigneur, Phillipe Gauthier, Sieur de Comporte, at Malbai, as it was then called, and the landing of Captain Nairn, in 1760, with his first Scottish settlers.

This collection of Canadiana is one of the largest and best available for public pleasure, and being so admirably displayed, provides a very entertaining and easy way to absorb the story of Canada and the acts of the drama that was played on the St. Lawrence. That Mr. Coverdale, with his intense and vital interest in relics of the picturesque past, conceived the idea is of not little importance to the country. His interest in Canadian history is inherited. His father, William Miles Coverdale, was a member of the first class to graduate from Queen's University and was for many years city engineer of Kingston, while his grandfather was a prominent architect who designed many of the public buildings of Eastern Ontario.

The home of all this art and culture, Manoir Richelieu, the property of the Canada Steamship Lines, cost about $2,000,000 and presents a record in winter construction, a period when below-zero temperatures prevailed most of the time. When the new site had been staked out in late September it was decided the hotel would be open for business June 15, 1929. That schedule was adhered to, but only officials of the company and the directors know what was involved. The whole large building had to be constructed under cover, a wooden shell being built around it which made it possible to maintain a temperature in which cement could be poured and the workmen could carry on their tasks. This work, Mr. Coverdale explains, was accomplished only by the closest cooperation between architects, owners and contractors, John Archibald of Montreal being the architect and Wilde & Brydon of Toronto the contractors. And there, within the palatial walls of Canada's finest resort, is the beautiful collection of historic paintings, prints and engravings in an architectural and decorative setting which is unsurpassed for its purpose, for all the traveling world to enjoy. There also is to be seen furniture some of which the engineer-president-farmer himself designed, bought at auctions, or imported from Europe. Another of the features of this hotel is its availability for winter sports which are extremely popular in that region. Severity of climate is no drawback to full enjoyment.

What does this man do to fill in the time? The available material indicates no great idleness. It shows that personally he is chairman of the board of Seaboard Air Line Railway Co., and of Pierce Petroleum Corpn.; president and director of Gulf States Steel Co., Canada Steamship Lines, Ltd., Century Coal Co., Midland Shipbuilding Co., Davie Shipbuilding & Repairing Co., and Pierce Oil Corpn.; director of the Bank of America, the Forty-four Wall Street Corpn., the Montreal Trust Co., Gulf, Mobile & Northern Railroad Co., Jackson & Eastern Railway Co., Birmingham & Northwestern Railway, Georgia & Florida Railroad and Meridian & Memphis Railway Co.

Mr. Colpitts, partner, is a director of the Chicago, Milwaukee, St. Paul & Pacific Railroad Co., the Pere Marquette Railway Co., Seaboard Air Line Railway Co., Pierce Petroleum Corpn., Pierce Oil Corpn., International Carriers, Ltd., Realty Acceptance Corpn., Stuyvesant Corpn., General Bond & Share Corpn., Darby Petroleum Corpn., Central National Corpn. In addition to his original degree of bachelor of arts, earned at Geneva College, Mr. Coverdale is a Dr. Sc., of the old college, and a LL. D. of Queen's University, Kingston, Ont., member of the American Society of Civil Engineers, and the American Institute of Consulting Engineers.

"And now," the visitor ventured, "would you mind telling me how you go about managing all these tremendous interests?"

"You said it a while ago," he smiled. "Twenty or thirty calls a day, long distance, from New York, Montreal and other places—letters, telegrams and so on."

"And during your spare time, the hours and hours—"

"I read history, enjoy art collections or fish. I manage to keep busy. My family (he has two sons and two daughters) wants me to quit. But it's hard to step down when there are so many interesting things to be done."

Kipling was right when he said civilization is a search for a man who can carry the burdens, and someone has added that to such a man every job, every new duty is important and calls for the highest efficiency. And efficiency, as most of us know nowdays, is doing the right thing without being told.

This story, drawn to unusual length because of the extraordinary interest in the man about whom it is written, is not going to be spoiled now by including his rules and morals and precepts. We know that he worked hard whenever there was work to be done. He worked hard and cheerfully. At 58 he is still a young man, much younger than the family Bible says. His heart is young, and that is the Carburetor of Life. He came up through struggling years to great success. Through the mud, as he puts it. Verily, indeed, he that humbleth himself shall be exalted.

Electrification Here and Abroad

Progress of railroad electrification in the United States and in foreign countries is covered in a serial report just issued by the committee on the electrification of steam railroads, appointed by the National Electric Light Association. The most important feature of this report is the result of an extensive survey of electrified railroads in Europe and the British Isles made by a sub-committee sent abroad for that purpose late in 1928.

While railroad electrification began in this country as early as 1895, the United States had only 1753.32 route miles electrified at the close of 1928. Europe had practically no electrified mileage prior to 1915 and now has 4996.33 route miles electrified. This is exclusive of Soviet Russia and the British Isles. Great Britain has 1019.12 route miles electrified, Canada 92.16 miles, while the whole of Central and South America combined has only 566.30 miles.

"The chief difficulty in forecasting nowadays is to announce a dream of the future quickly enough so that you will not receive a catalogue of it in the next mail."—*Roger W. Babson.*

"There is no feeling in the world comparable to that of self-reliance, without which we can do nothing."—*John D. Rockefeller.*

To attain happiness in another world we need only to believe something, while to secure it in this world we must needs do something.—*Charlotte Perkins Gilman.*

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THE RAILROAD WORLD KNOWS

—P & A Photo

Never again will you see a picture like this one; the antique train with its wood-burning engine, an exact replica of the one on which Thomas Edison was a "news butcher" when a boy. The party has just alighted at Smith's Creek Station, set up in Henry Ford's early American village of Greenfield. Left to right: Henry Ford, Engineer Bill Black, Mrs. Edison, Mr. Edison, President and Mrs. Hoover.

Some Queer Things in the News

Human Interest Items About Men and Women in the Public Prints

THIRTY years ago a girl three days over the age limit rode over the old Oregon & California railroad from Portland to Los Angeles on a half-fare ticket. Today the Southern Pacific company, successor to the O. & C., is $15 richer.

An aged man, who requested his name remain secret, said his conscience pained him because of the misrepresentation about his daughter's age. He said the daughter now is an evangelist in the East.

And Sat Down Beside Her

The Missouri-Pacific Railroad has been sued for $10,000 because it is charged it permitted a spider to ride on one of its trains and thus to bite a passenger, Alvena Ruck.

The woman alleges in a suit filed at Little Rock that she was bitten on the neck by the spider on June 28 while on a train en route from St. Louis to Little Rock. She charges the railroad with negligence in allowing the spider on the train.

Struck by Train But Still Lives

An almost miraculous escape from injury was experienced near Appleton, Wis., Oct. 6, by Mary Brouillard, small daughter of Mr. and Mrs. M. J. Brouillard, when she was struck by the engine of a fast-moving passenger train and thrown into the air. The girl turned over eight or ten times before striking the ground, and witnesses rushed her to a doctor's office, believing she was fatally injured. An examination revealed that her body wasn't even bruised.

Gumming the Game

Superintendent Goodloe of the Southern Pacific, in explaining a delay of an hour and thirty minutes to No. 353 a few weeks ago, stated that the time was consumed in extricating a negro trespasser who had sought free passage by boarding a car of iron pipe and concealing himself from observation by crawling under the pipe. Everything might have gone well but a piece of the pipe shifted in train movement, jamming one of the negro's feet against the end of the car. Unable to get his foot from beneath the pipe, he called for aid at

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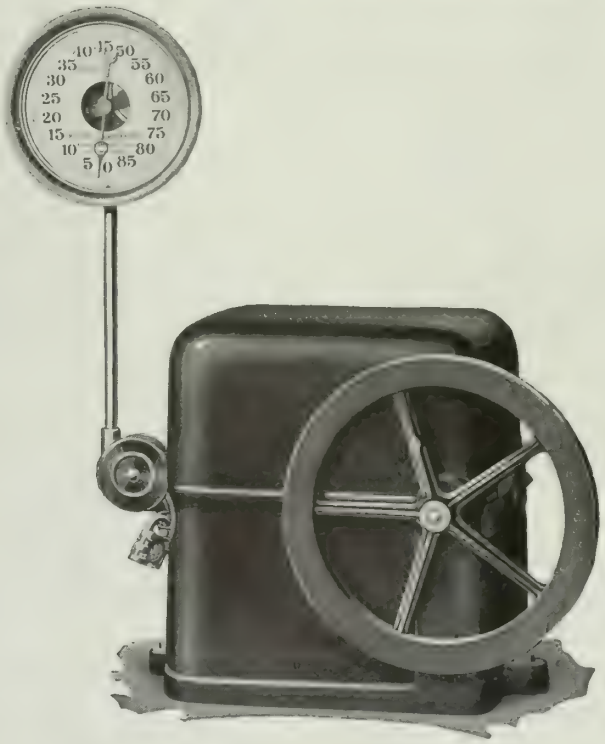

THOUSANDS of these recorders are in use by railroads and have proven of great value because they automatically provide a permanent and indisputable record of:—

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2—Total mileage between any and all points.
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Write for Bulletin 620, illustrating and describing this device.

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Measured by this standard, the ROBINSON AUTOMATIC CONNECTOR merits your especial consideration.

It saves time because it is entirely Automatic—dependent in no way upon human effort.

It eliminates an element of danger by cancelling the hand manipulation of hose.

It lessens train detention by removing all possibility of hose "opening up" in service—by protecting the hose against blow-outs.

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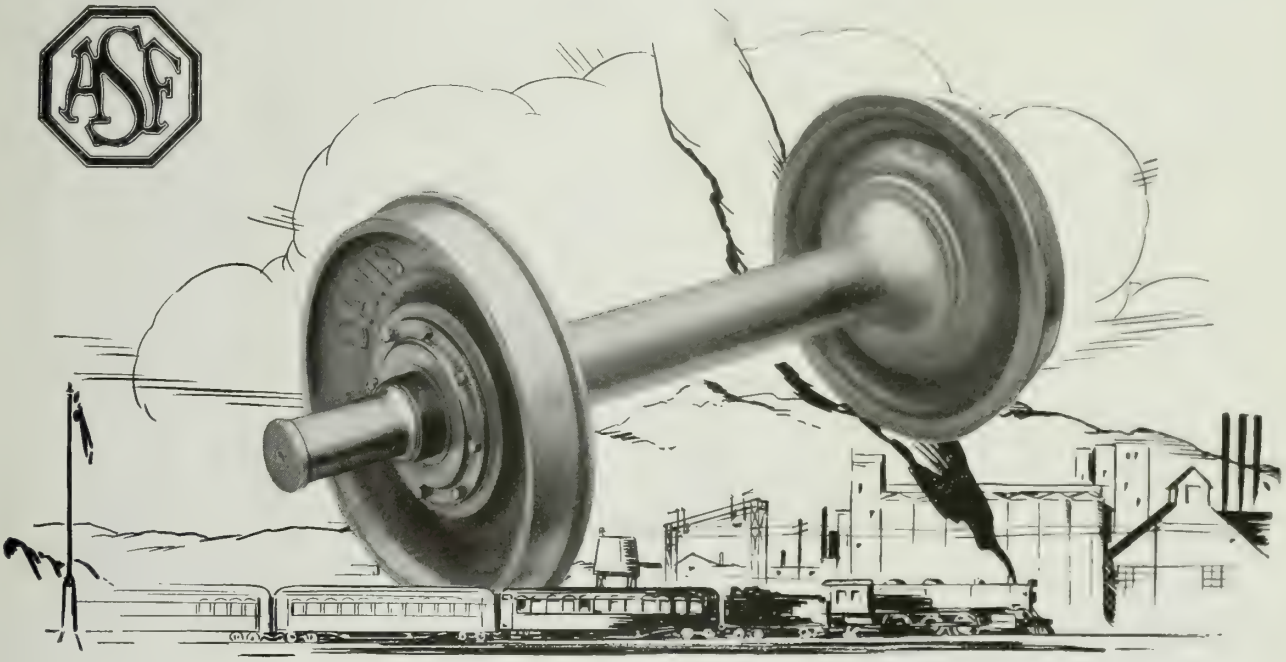

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Write for Descriptive Booklet

AMERICAN STEEL FOUNDRIES

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The Men Who Do the Work

P & A Photo

H. A. Scandrett, President of the Milwaukee, Shakes Hands With John M. Horan, 91 Years Old, Boiler Inspector, in the Company's Service 75 Years.

MORE THAN eight and three-quarter centuries, 886 years of active railway service, were represented by 17 old-timers who met at Roanoke, Va., October 14, in the office of President A. C. Needles of the Norfolk & Western Railway. They met to receive from President Needles, on behalf of the board of directors of the railroad, the gold, diamond-mounted insignia of the Norfolk & Western Veterans Association which is presented by the railway to members of that association who have given 50 or more years of active service to the Norfolk & Western. Only one of the 17 veterans present is now in active service, General Superintendent James T. Carey, who has been an employe of the railway 51½ years.

Following the presentation ceremonies a luncheon at the Hotel Roanoke was given to the recipients of the diamond insignia. Among those present, in addition to the "diamond pin" men, were: President A. C. Needles; Vice Presidents W. J. Jenks, B. W. Herrman and W. S. Battle, Jr.; General Manager J. E. Crawford; and Floyd E. Chabot, secretary-treasurer of the veterans association.

Handsome gold and silver emblems, tangible evidence of long and faithful service, are also being distributed among the members of the association. They are of four types—sterling silver for members who have served the railroad between 20 and 30 years; green gold for those in service between 30 and 40 years; and yellow gold for those between 40 and 50 years.

Fifty Years With the B. & O.

Commemorating the fiftieth anniversary of the day he went to the Baltimore & Ohio as a telegraph operator, October 15, 1879, E. R. Scoville, assistant superintendent of welfare and safety for that company at Baltimore, has been decorated with the 50-year service button by C. W. Galloway, vice president of operation and maintenance.

Scoville has had 53 years of railroad service, having been telegraph operator on the Big Four from 1876 to 1879, at Bellefontaine, Ohio, his birthplace, starting at the age of 18. His first position with the Baltimore & Ohio was as an operator at New Vienna, Ohio, becoming dispatcher at Cincinnati in 1881 and chief dispatcher at Chillicothe, Ohio, in 1890. He was appointed train master in 1893, became superintendent of telegraph for the Baltimore & Ohio Southwestern in 1900, and in November of the same year, division superintendent at Flora, Ill. In the capacity of division superintendent he was afterward consecutively located at Washington, Ind., and Chillicothe, Ohio, being stationed at the latter place for nine years.

After 35 years' experience in railroad work Scoville became prominently identified with safety work, becoming a member of the general safety committee in 1914, later a supervisor and then assistant superintendent of safety and welfare.

"Personality is something added to the common gifts, and you cannot judge a man's character on that alone."—*J. D. Beresford.*

"One of the great developers of character and humanity is the fact of being in debt."—*John J. Raskob.*

"When the universe no longer holds any amusement for man it is time for him to die."—*Albert A. Michelson.*

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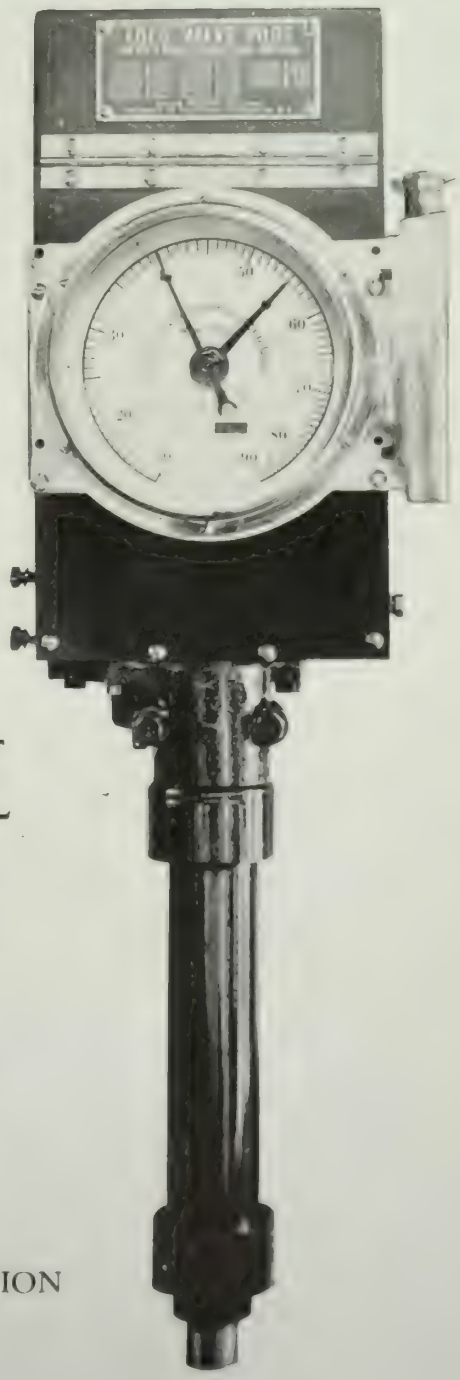

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The News of the Month

REDUCTION of railway operating expenses was an important factor last year in the lower operating ratio of Class 1 railroads, according to a statement by the Interstate Commerce Commission November 1 giving a comparative review of the operating averages of carriers for the years 1925 to 1928.

Railway operating expenses per mile of road for the entire country in 1928 were $18,380 as compared with $19,159 during 1927. During 1928, railway operating revenues per mile of road were $25,378 as compared with $25,716 the preceding year.

During 1928, operating expenses constituted 72.5 per cent of operating revenues as compared with 74.5 per cent during 1927. The freight service operating ratio in 1928 was 67.4 per cent as compared with 70.3 the preceding year and the passenger service operating ratio was 91.7 per cent last year as against 89.7 the year before.

The percentage of railway operating revenues claimed by tax accruals increased during the year in question to 6.4 per cent as compared with 6.1 per cent in 1927.

Payroll per mile of road chargeable to operation in 1928 was $10,951 as compared with $11,305 the previous year and the percentage of railway operating expenses claimed by payroll last year was 59.4 per cent as compared with 58.8 the year preceding.

During 1928 the average number of cars per freight train was 47.1 as compared with 45.5 the year before and the average speed of trains increased from 12.3 to 12.9 miles per hour.

Revenue from passenger traffic continued to show unfavorable returns. During 1928 the revenue per passenger service train mile was $2.13 as compared with $2.23 during 1927 and the revenue per passenger mile was $.03312 as against $.03336 the year preceding.

Seaboard Readjustment Plan

The final readjustment plans of the Seaboard Air Line, announced about the middle of October, contemplate offering stockholders 1,900,000 shares of new no par common stock at $12 a share, which will produce $20,000,000, subject to approval by the I.C.C. This plan involves the retirement through voluntary exchange of approximately $22,300,000 5 per cent adjustment bonds, on which the interest accumulations total about $4,500,000, and the issuance in their stead of about $11,150,000 of consolidated 6 per cent bonds and 330,000 shares of new no par common stock.

William H. Coverdale of the engineering firm of Coverdale & Colpitts, which has been concerned with practically all of the railroad reorganizations in recent years, was elected chairman of the board, as announced elsewhere in this issue, subject to the approval of the Interstate Commerce Commission, to succeed Robert L. Nutt, who announced his desire to retire after nearly 40 years of active service with the company. He will continue as a director and in an advisory capacity. He considers the step opportune at this time in view of the assured success of the refunding plan and the strong financial position in which the company will now be placed. L. R. Powell, Jr., president of the Seaboard since the death of S. Davies Warfield in 1927, will continue as president.

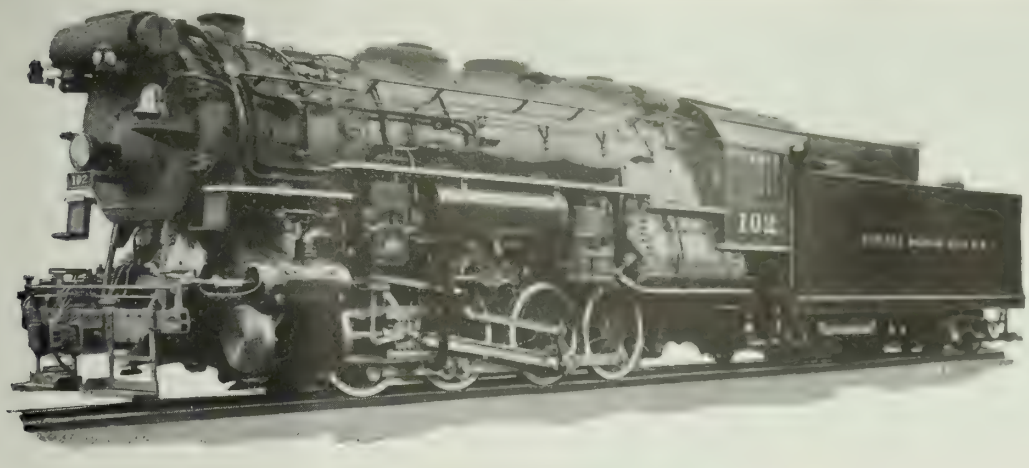
A group has been formed, Mr. Nutt says, to invest in Seaboard securities an amount now aggregating in excess of $10,000,000 and that among the securities purchased by this group is the major part of the Seaboard stock held by the estate of the late S. Davies Warfield. In connection with this development the following men have consented to accept election as directors of the company, to be added to the existing board:

Preston S. Arkwright, Walter W. Colpitts, Harvey C. Couch, William H. Coverdale, Norman H. Davis, George S. Franklin, Robert Lassiter, Oscar Wells, Louis H. Windholz and E. A. Yates.

Seaboard earnings for the current year are encouraging. Every month of the year, from January to date, has shown an increase in gross revenues and net earnings. For the nine months ended September 30, 1929, gross revenues were $2,162,000 in excess of those for the same nine months in 1928. Notwithstanding increased maintenance appropriations during the first eight months of 1929 amounting to $1,135,000, net income (before adjustment bond interest) increased by $453,000, to an aggregate amount of $1,088,000 for that period.

More P.R.R. Electrification

Negotiations just concluded by the Pennsylvania Railroad and the city of Baltimore now open the way for complete electrification of the Pennsylvania Railroad from New York to Washington, including the Baltimore tunnels.



THREE-CYLINDER (0-8-0) TYPE SWITCHING LOCOMOTIVE EQUIPPED WITH AN AMERICAN MULTIPLE THROTTLE

Switchers Are *Faster* Now

IMAGINE a busy yard where the engineman had to "horse-over" a hand reverse lever. The power reverse has increased shifting speed by at least one-fifth.

A further increase can be had by use of the American multiple throttle. Built into the superheater header it controls the steam supply to the cylinders where the steam leaves the superheater.

This provides instant engine response to throttle movement. There is no waiting for the superheater to fill with steam after the throttle is opened, no drag on brakes against steam expanding in the cylinders after the throttle is closed; therefore, a marked decrease in brake shoe wear.

The increase in shifting speed is noticeable--so noticeable, in fact, that the crew time their signals for the quicker movement.

AMERICAN THROTTLE COMPANY, Inc.

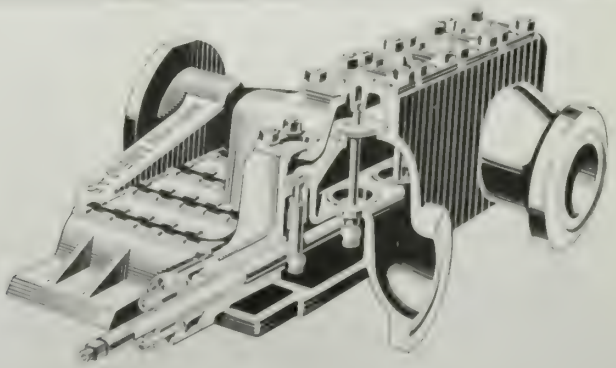
17 East 42nd St.
NEW YORK

Peoples Gas Bldg.
CHICAGO

Canadian Representatives:

The Superheater Company, Limited, Montreal

A-255



The First Train to be Named for an Individual.

The new agreement will have far-reaching effects upon the operation of passengers and freight trains on the company's eastern lines. It will enable the New York-Wilmington electrification to be extended to include Washington and the Washington terminal area for passengers and freight. Completion of the project upon this larger scale will give the Pennsylvania Railroad System a total of 799 miles of line and 2,759 miles of track electrically operated.

The Commodore Vanderbilt

One of the New York Central's five new 24-hour flyers between New York and Chicago has been named the Commodore Vanderbilt, the first train in America, it is said, to be named for an individual. The signal for departure of the first train bearing his great grandfather's name was given by William K. Vanderbilt.

In the picture, reading from left to right, as we are accustomed to do, are seen H. D. Starbuck, vice president; G. H. Ingalls, vice president traffic; P. E. Crowley, president; William K. Vanderbilt, director of the New York Central; Albert Stone, believed to be one of the oldest railroad employes in America. Mr. Stone entered the service of the old New York & Harlem Railroad in 1850, many years before Commodore Vanderbilt, whom he later knew well, became identified with the railroad. The men and women in costume of Commodore Vanderbilt's time are employes of the traffic department of the New York Central.

Abolishing Grade Crossings

The Chicago & North Western and the Chicago, North Shore & Milwaukee electric railway are to eliminate 25 grade crossings in small towns north of Chicago. The work is to begin at once. The expense probably will be borne jointly by the railroads and the towns affected under provisions of a law enacted recently.

Signal Installation for the B & O

A series of automatic "color-position-light" block signals is being installed by the Baltimore & Ohio on a 100-mile stretch of line over the mountains between Grafton, W. Va., and Cumberland, Md., and from Patterson Creek, W. Va., to McKenzie, Md., 6.3 miles, at a cost of approximately $1,600,000. This type of electric signal, first used six years ago on the Baltimore & Ohio and now in use on over 400 miles of road, gives clear and unmistakable instructions to locomotive engineers and trainmen by both the color and the position of the lights in its circular dial. Each signal controls a given stretch of track, or block. Vertical green indicates a clear block and orders to "proceed." Diagonal yellow, from right to left, tells the engineer that the second block ahead is not clear and that he must "proceed, prepared to stop at next signal." Diagonal lunar white, white with a bluish tinge, from left to right, gives the word "permissive," or "proceed with caution." Horizontal red says "stop."

This color-position-light system was invented by the late F. P. Patenall, signal engineer of the company. The Baltimore & Ohio was the first railroad to use it extensively.

Up Goes the Net

Class I railroads in the first nine months this year had a net railway operating income of $960,078,699, which was at the annual rate of return of 5.29 per cent on their property investment, according to the Bureau of Railway Economics. In the first nine months of 1928, their net railway operating income was $820,572,952 or 4.59 per cent on their property investment. This compilation as to earnings for the nine months of 1929 is based on reports from 180 Class I railroads representing a total mileage of 241,545 miles.

Gross operating revenues for the first nine months in 1929 totaled $4,775,112,966 compared with $4,541,847,582 for the same period last year or an increase of 5.1 per cent. Operating expenses for the first nine months of the year amounted to $3,414,375,652 compared with $3,346,368,629 for the same period one year ago or an increase of two per cent.

Class I railroads in the first nine months of 1929 paid $310,914,371 in taxes, compared with $286,695,003 for the same period the year before. For the month of September alone, the tax bill of the Class I railroads amounted to $38,635,478, an increase of $2,848,869 over the previous year.

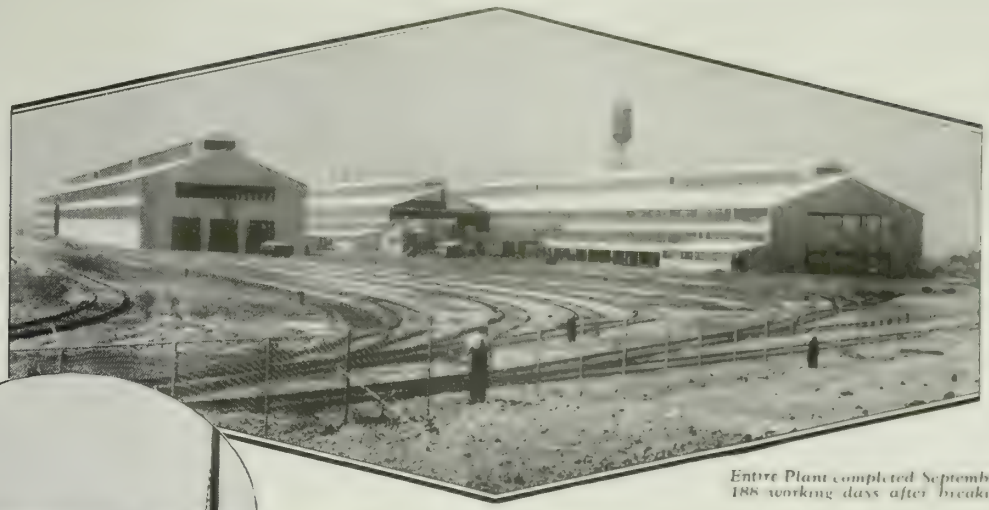
Twelve Class I railroads operated at a loss in the first nine months of 1929, of which five were in the Eastern, three in the Southern and four in the Western District.

Another Little Railroad

The Mound City & Eastern Railway has applied to the Interstate Commerce Commission for authority to issue $2,400,000 of stock and bonds to finance the construction of its new 70-mile line of railroad from Leola to Mound City, S. D.

Seasonal Decline Noted in Revenue Loading

Loading of revenue freight for the week ended October 26 totaled 1,133,810 cars, the car service division of the American Railway Association announced November 6. Compared with the corresponding week last year, this was a reduction of 29,164 cars, but an increase of 20,994 cars above the corresponding week in 1927. It was a reduction, too, of 51,700 cars under the preceding week, due to the usual seasonal decline in freight traffic. Miscellaneous freight loading for the week totaled 449,076 cars, 7,566 cars under the same week last year but 2,320 cars over



Entire Plant completed September 19, 1929
188 working days after breaking ground

Ground Broken for Construction
February 14, 1929

Pullman Shops

at Bessemer

Built in 188 working days

Complete freight car plant with Sixteen Buildings containing 418,000 square feet of space constructed in record time.

THE new plant at Bessemer, Alabama, for the Pullman Car & Manufacturing Corporation is just being placed in operation. In a short time 25 freight and refrigerator cars will be built every day in the interests of serving the railroads of the south.

In January the site—with depressed tracks and pits, old coke ovens and slag dumps—was occupied by the old blast furnaces of the Tennessee Coal, Iron and Railroad Company.

On February 14th "ground" was broken for construction, and on September 19th construction work was completed—188 working days after the first excavation.

In view of the character of the site—158,000 yards of grading being required—and the extended nature of the operations—the whole site is 100 acres and one of the shop buildings is nearly 1,500 feet long—188 working days is considered an unusually creditable speed performance.

We executed both design and construction, carrying along the construction as the plans were developed. The work was done in full cooperation with and under the direction of the organization of the Pullman Car & Manufacturing Corporation, Mr. C. A. Liddle, President; Mr. W. N. Oehm, Manager of Works; Mr. F. O. Reemer, Southern Representative.

We offer to railroad and industrial companies the experience of specialists in the design and construction of shops; passenger, locomotive and freight terminals; power plants; factories; office and monumental buildings.

Important Facts about Pullman Shops

The plant contains three main groups of buildings as follows

1. Steel Shop Group with a Steel Fabricating & Erecting Shop 102 ft. by 1,464 ft., a Machine, Forge, Wheel & Truck Shop, 90 ft. by 600 ft. and various small buildings.
2. Wood Shop Group with Lumber Storage Shed, Canopy, Work Shops, etc.
3. Paint Shop Group with Paint Shop and Mixing Bldg.

There are also several office and auxiliary buildings.

The buildings contain 418,000 sq. ft. of floor area.

1,000 men were employed.
3,800 tons of steel were used.
175,000 sq. ft. of sash.
580,000 sq. ft. of siding and roofing.
8 miles of track.

188 working days required for construction.

[illegible]

UNITED ENGINEERS & CONSTRUCTORS

INCORPORATED

DWIGHT P. ROBINSON, PRESIDENT

PHILADELPHIA — NEW YORK — NEWARK — CHICAGO
LOS ANGELES — BUENOS AIRES — RIO DE JANEIRO — MONTREAL

MAXIMUM RETURN TO CLIENTS PER DOLLAR INVESTED

Union Station Now Being Erected at Tulsa, Okla., to be Used by Frisco, Santa Fe and the Katy.

the same week two years ago. Merchandise, l.c.l., amounted to 270,298 cars, an increase of 278 cars above the same week in 1928 and 1,780 cars over the same week two years ago.

Chicago's Big Program

Chicago's council committee on transportation has received from engineers employed for the purpose a report recommending routes for elevated and surface lines and for subways. This report calls for the spending of $285,610,000 in the next ten years. If rapid transit and surface lines will consolidate and the city will build the subways to be equipped and operated by the company, the city would provide $85,610,000 of the amount mentioned. The new company, the engineers say, should contribute $168,260,000 toward extensions. The company officials say they could procure $200,000,000 without increasing fares.

New Bus Service Starts

Through daily bus service between Chicago and Denver has been established by Chicago & North Western. From Omaha west, the buses will follow the right of way of the Union Pacific. Two of the buses will depart daily from Chicago at 163 North Clark street, one at 8:30 a.m. and the other at 8:30 p.m. The new service, although controlled by the railroad, will be operated under the name of the Interstate Transit Lines. Plans are under way to extend bus service to the Pacific Coast.

California to Have New Bus Regulations

The California railroad commissioners are revising old rules and regulations and preparing new ones for automobile equipment of certified carriers. Among proposed regulations is one prohibiting the collection of fares, making of change, etc., by operators of buses while the vehicle is in motion. It is feared that this will tend to slow up schedules on urban lines. No standees are permitted except in vehicles with head room in excess of 6 ft. 4 in., which is greater than all standard equipment at this time. Hours of labor by bus operators are limited to ten hours in any 24-hour period, with a 12-hour spread. This would require the adjustment of many street railway schedules.

As to Business Cars

An order was issued by the Interstate Commerce Commission Nov. 7 directing railroads to discontinue by January 15, 1930, the transporting of business or private cars of other carriers except at the published tariff rates. When the so-called private car case was heard last summer the commission said no formal order seemed necessary. Upon further consideration it was decided that an order is proper.

Fairmont 2110 Official Inspection Coach.

Albany-Hudson Line Wishes to Liquidate

Severe competition from private automobiles and public buses and trucks causing large deficits in operating income has caused the Eastern New York Utilities Corpn. to ask the I.C.C. for authority to abandon its street and interurban line, 35 miles long, between Hudson and Rensselaer, N. Y. The company wishes to liquidate and cease business in the district mentioned.

Inspection Coach by Fairmont

Good appearance and present-day standards of comfort are found in the Fairmont "Twenty One Ten" motor coach made by Fairmont Railway Motors, Inc., of Fairmont, Minn. The new coach provides railroad officials safe, swift, commodious transportation, always ready, independent of train schedules. Seats for seven passengers, including driver, are upholstered in genuine brown Spanish leather, with space for two additional folding seats. Two double and two single seats have reversible backs and deep boxed springs. A center aisle leads to the rear door. Two front side doors and one rear door permit the car to be emptied quickly for brief inspection stops.

The floor is covered with battleship linoleum. There are four dome lights and two ventilators. Heat is circulated by an electric fan in the Tropic-Aire heater utilizing hot water from the engine. Power is supplied by a four-cylinder Red Seal Continental H9 Industrial motor developing 33 h.p. at 2500 r.p.m. A vacuum system draws gasoline from a 20-gallon tank at the rear of the chassis.

The chassis is all steel, mounted on coil springs. The wheels are 20-inch, with demountable tires of 7/16 to 5/8-inch drop forged manganese carbon steel of the same composition as wheels used on locomotive tenders. The body is built for maximum durability, of strong aluminum alloy and ash wood with patented laminated body posts. The exterior is finished in lacquer, color selected by purchaser.

This is the Frisco-Rock Island Station to be Erected at Oklahoma City. Work to Begin Soon.

FRISCO

ENDURANCE RECORD

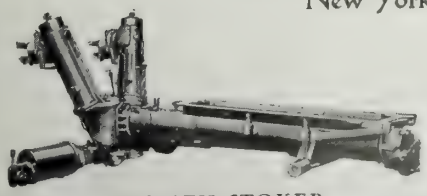
WE take just pride in having played a small part in the most remarkable record ever made by any locomotive in this or any other country.

The locomotive illustrated above ran 7,350 miles in continuous freight service without knocking the fire. During this period — July 19th to August 16th — the locomotive delivered 15,509,812 gross ton miles and burned 1,516,425 lbs. of coal, or an average of 99.85 lbs. per 1,000 G. T. M.

It was fired by a Standard Type "B" Stoker.

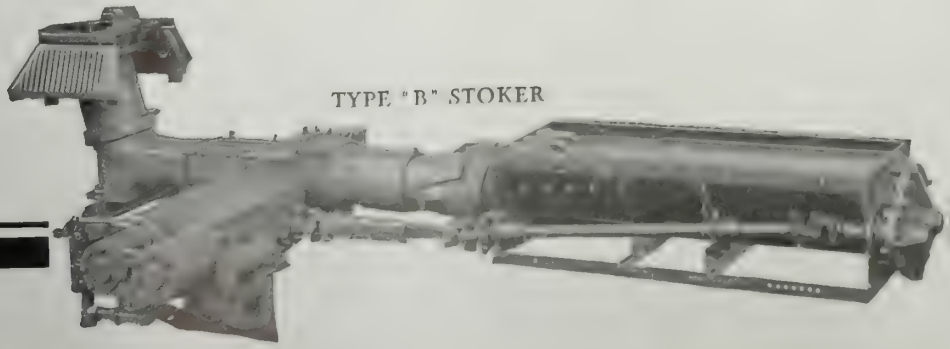
The Standard Stoker Company, Inc.

New York Chicago Erie



DUPLEX STOKER

TYPE "B-K" STOKER



TYPE "B" STOKER

Railway Construction

Tracks and Yards

CALIFORNIA.—The Western Pacific-California Railroad, a subsidiary of the Western Pacific, has filed with the I.C.C. an amended application for construction of a line of railroad from South San Francisco to Redwood City with an extension to Niles in Alameda county to connect with the Western Pacific at that point. The applicant asks for reopening and rehearing of the entire project in connection with the consideration of its amended application.

MONTANA.—The Northern Pacific has filed an application for permission to build its railway line into Lewistown. The company, the statement said, proposes to expend immediately in new construction in eastern and central Montana from $6,000,000 to $8,000,000 in the building of from 149 to 196 miles of line. The proposed new construction westward from the terminus of the Glendive-Brockway line would be via Fordan and Edwards, crossing the Musselshell River near Weede, thence to Winnett and Lewistown. The company will seek an arrangement with the Milwaukee for use of its line between Winnett and Lewistown, a distance of 59 miles, and, in event that arrangement is made, the new construction from Brockway west would involve 149 miles at an estimated cost of $6,000,000. But, if the Northern Pacific decides to build its own line from Winnett to Lewistown, the entire construction from Brockway will be 196 miles and the estimated cost, $8,000,000.

TENNESSEE.—The Nashville, Chattanooga & St. Louis has asked permission to abandon 11 miles of spur and branch lines built to serve coal mines in Grundy and Marion counties.

TEXAS.—The Rock Island has asked permission to build a line from Dalhart to Morse, 58.14 miles.

WEST VIRGINIA.—The Virginian & Western, a subsidiary of the Virginian, has let a contract to Boxley Brothers, Orange, Va., for a 13-mile extension from Mullens to a point near Gilbert. It will be necessary to drive four tunnels and excavate about 700,000 cu. yds. of material.

Buildings & Structures

ARKANSAS.—Kensett. The receiver for the Missouri & North Arkansas has acquired seven acres here for an enginehouse, a machine shop, and a storage shed for passenger cars.

CANADA.—Ont., Fort Churchill. The minister of railways and canals has announced plans for a 2,000,000-bu. grain elevator here to be started in the summer of 1930 by the Hudson Bay Co.

—Ont., St. Thomas. The Roberts & Schaefer Co. has an order from the Pere Marquette for a "N. & W." type electric engine coaler.

ILLINOIS.—South Chicago. The Rock Island has let a contract to the Roberts & Schaefer Co. for a 50-ton capacity concrete track hopper in connection with an "N. & W." type electric engine coaler.

INDIANA.—Indianapolis. The Pennsylvania has let a contract to the Ogle Construction Co. for a 300-ton, four track, reinforced concrete, automatic electric coaling station and sand plant here.

IOWA.—Shopton. W. A. Smith & Son, Fort Madison, has a contract from the Santa Fe for an addition to the enginehouse here to include shop facilities.

MASSACHUSETTS. — Boston. The Roberts & Schaefer Co. has a contract from the Boston & Maine for an automatic sand drying and 280-cu.yd. enclosed sand storage plant to be erected immediately at the Somerville enginehouse in conjunction with the 2000-ton, six-track coaling plant being erected by the Roberts & Schaefer Co. there.

MICHIGAN.—Ferndale. The Grand Trunk Western has filed plans with municipal authorities for a brick and stone passenger station here.

—Pontiac. Contracts involving $400,000 have been awarded by the Grand Trunk Western for the new locomotive terminal here. A 10-stall enginehouse with 15 outside tracks and a 90-ft. three-point turntable will be built, a powerhouse with a 190-ft. chimney, a machine shop, a 100,000-gal. steel water tank, a deep-water cinder pit with traveling loading crane, an office and stores building, a drainage system and other items, including a direct steaming system for locomotives.

MISSOURI.—Joplin. The Missouri Pacific has let a contract to the Roberts & Schaefer Co. for a 50-ton capacity concrete track hopper in connection with an electric engine coaler.

MONTANA.—Great Falls. The Great Northern budget for 1930 includes new stationary power plants for this city, Havre, and Whitefish.

OHIO.—Bradford. The Pennsylvania has let a contract to the Ogle Construction Co. for a 500-ton, four-track, reinforced concrete, automatic electric coaling station and sand plant here.

OHIO.—Cleveland. The Cleveland General Construction Co. has a contract from the Big Four for a 30 by 130-ft. two-story passenger station at Linndale yards, to cost about $150,000.

WEST VIRGINIA. — Fairmont. The Ogle Construction Co. has a contract from the B. & O. for a 500-ton, four-track, reinforced concrete, automatic electric coaling station and gravity sand handling plant.

WISCONSIN.—South Janesville. The Chicago & North Western has let a contract to the Ogle Construction Co. for a two-track Ogle mechanical ash handling plant here.

WYOMING.—Cheyenne. H. A. Baum, Los Angeles, has a contract from the Union Pacific for an addition to the enginehouse here to cost $300,000 and for remodeling the passenger station to cost $70,000.

Locomotive Orders

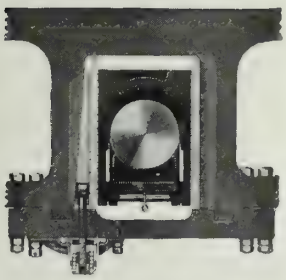
According to reports filed with the A.R.A., locomotives in need of repair on the Class I railroads, October 15, totaled 8,229 or 14.5 per cent of the number on line, 7.6 per cent in need of classified repairs and 6.9 per cent in need of running repairs. This was an increase of 561 compared with the number on October 1 at which time there were 7,668 or 13.5 per cent. Serviceable locomotives in storage, October 15, totaled 4,006 compared with 4,500 on October 1.

The Burlington is now inquiring for 12 4-6-4 and eight 4-8-4 type; Rock Island, 40 4-8-4 type; Georgia, Ashburn, Sylvester & Camilla, one locomotive; Montour, two locomotives; Frisco, 30 2-8-2 type; Wabash, 25 4-8-4 type; Seaboard Air Line, four 2-8-2, six 2-10-2, five switchers. The Seaboard Air Line is inquiring for five 2-10-0, ten 2-8-2 and five switchers. The Missouri Pacific has authorized the purchase of five Mountain type and 25 freight locomotives. The Chesapeake & Ohio, it is reported, will purchase a large number of locomotives.

The American Locomotive Co. received the following orders: Canton & Carthage, one 2-8-2 type; Nashville, Chattanooga & St. Louis, five 4-8-4 type; New Orleans, Natalbany & Natchez, one 2-8-2 type; Sierra Ry. of California, one 2-8-2 type. Baldwin received orders from Chicago, West Pullman & Southern for one switcher; Newburgh & South Shore, one switcher; Paracatu Estrado de Ferro (Brazil), one 2-6-2 type; Pennsylvania, 50 4-8-2 type.

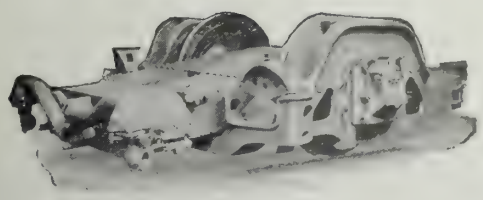
Getting A Grip

On Locomotive Maintenance



Franklin Automatic Wedge

The Tandem Main Rod Drive



The Locomotive Booster

OF ALL THE COSTS entering into the operating account, locomotive maintenance is most susceptible of control.

Many modern improvements such as Automatic Wedges and the Tandem Main Rod Drive reduce locomotive maintenance, but perhaps the most important is The Locomotive Booster.

This makes possible the use of a locomotive having a fewer number of drivers to do a given job. Since locomotive maintenance is roughly proportional to the number of drivers the result is a reduction in cost of 5 to 10 cents per locomotive mile at an expense of only half a cent per mile for Booster maintenance.

By such use of the Booster and by studied assignment of Booster power a substantial gain in net revenue is made possible.

The maintenance saving alone justifies the Booster, while the resulting operating economies are all velvet. At the same time the Booster makes a more flexible operating unit.

FRANKLIN RAILWAY SUPPLY COMPANY, Inc.

NEW YORK CHICAGO SAN FRANCISCO ST. LOUIS MONTREAL

Lima received an order from the Pennsylvania for 25 4-8-2 type. The Pennsylvania will also build 25 4-8-2 type at its Altoona shops. The Great Northern will build 24 freight locomotives at its own shops. The Ford Motor Co. ordered one 600 h.p. and one 300 h.p. oil-electric to be built by Ingersoll-Rand, General Electric and American Locomotive. The Lackawanna ordered two "three power" Diesel electric locomotives, the oil-engines to be of the Ingersoll-Rand make; electrical apparatus will be supplied by the General Electric Co.

Passenger Car Orders

Orders for passenger cars placed since the October issue of Transportation include the following: Baltimore & Ohio, 50 passenger cars with Pullman; Chesapeake Beach Ry., one combination passenger and baggage gas-electric rail motor car with J. G. Brill Co.; Delaware & Hudson, two mail and baggage cars with American Car & Fdy. Co.; Denver & Rio Grande Western, two combination mail and baggage cars with American Car & Fdy. Co.; Fernwood, Columbia & Gulf, one passenger gasoline rail motor car with J. G. Brill Co.; Lackawanna, one postal car with American Car & Fdy. Co.; Uruguay State Railways, two combination passenger and baggage gasoline rail motor cars with J. G. Brill Co.

The Missouri Pacific has authorized the purchase of 10 parlor cars, six diners and three club cars. The Wabash is inquiring for three baggage and mail cars.

Freight Car Orders

According to reports filed by the carriers with the car service division of the A.R.A., Class I railroads had fewer freight cars in need of repair October 15, than at any time in recent years. On that date, there were 129,140 freight cars in need of repairs, or 5.8 per cent of the number on line, 4.3 per cent in need of heavy repairs and 1.5 per cent in need of light repairs. The number in need of repair October 15, this year, also was a reduction of 3,471 cars compared with October 1, at which time there were 132,611.

Several large inquiries have been placed since the October issue of Transportation. They are: Rock Island, 2000 box, 1000 gondola, 1500 automobile, 250 stock and 250 flat cars; North America Car Corpn., 1500 refrigerators; Argentine State Railways, 1102 box, 500 gondola, 398 platform and 60 caboose cars. The Missouri Pacific has authorized the purchase of 1250 box, 1000 hopper and 35 cabooses. Other inquiries include the following: Anglo-Chilean Consolidated Nitrate Corpn., 50 dump cars; Atlantic Refining Co., six tank cars; Ducktown Chemical & Iron Co., three ore cars; Imperial Refining Co., Ltd., 165 tank cars; Republic Iron & Steel Co., eight steel butt cars; Skelly Oil Co., 52 tank cars; Western Electric Co., 15 flat cars.

The Anglo-Mexican Petroleum Co. ordered 11 tank cars from General American Tank Car Corpn.; Butler Bros., 15 air dump cars from Koppel Industrial Car & Equipment Co.; Cerro de Pasco Copper Corpn., 20 cars from American Car & Fdy. Co.; Chevrolet Motor Co., 20 hopper cars from Standard Steel Car Co.; Chicago & North Western, 100 underframes for cabooses from American Car & Fdy. Co., Columbia Gasoline Corpn., 25 tank cars from General American Tank Car Corpn.; Hudson Bay Mining & Smelting Co., Ltd., 22 air dump cars from Western Wheeled Scraper Co.; National Rys. of Mexico, 600 box and 200 gondolas from Standard Steel Car Co.; New York, Chicago & St. Louis, 10 cabooses from Canton Car Co.; Pacific Fruit Express, 400 refrigerators from Pacific Car & Fdy. Co.; Pennsylvania, 1000 steel box car bodies from Bethlehem Steel Co.; Pennsylvania Salt Mfg. Co., four tank cars from General American Tank Car Corpn.; Republic Iron & Steel Co., 43 gondola bodies from Pressed Steel Car Co.; St. Louis Southwestern, 10 steel underframes from American Car & Fdy. Co.; United Fruit Co., 100 banana cars and 80 extra superstructures from Magor Car Corpn.; United States Navy, one flat car from American Car & Fdy. Co.; Virginia-Carolina Chemical Corpn., one tank car from General American Tank Car Corpn. The Great Northern will build 1000 box cars at its St. Cloud shops, and the Norfolk & Western is rebuilding 470 gondolas at its Roanoke shops. The Transcontinental Oil Co. is reported to have ordered 100 tank cars from American Car & Fdy. Co.

Bus Orders

Recent bus orders and deliveries include the following: Berkshire Street Ry., Pittsfield, Mass., four type W. Yellow observation buses; Boston Elevated Ry., one model 54A White bus; Brooklyn & Queens Transit Corpn., one 33-passenger A.C.F. street car type; Capital Traction Co., three type W. Yellow city service; Citizens Transit Co., Oil City, Pa., five 33-passenger A.C.F. coaches; Connecticut Co., nine 25-passenger Mack city type; Eastern Massachusetts St. Ry., eight 40-passenger A.C.F. metropolitan coaches; Eastern Michigan Motorbuses, four 29-passenger A.C.F. parlor coaches; Fifth Avenue Coach Co., two type W. Yellow parlor coaches; Georgia Power Co., Atlanta, four 20-passenger Reo buses with Fitzjohn bodies; Hamburg Ry. Co., two Mack city type; Illinois Power & Light Co., three type W. Yellow city service buses; Interstate Transit Lines, five type W. city service Yellow buses; Martz Coach Co., 50 model 54 White buses; Middlesex & Boston St. Ry., five model 50B White buses; New England Transportation Co., eight five-ton Autocar chassis; Oklahoma Railways, Oklahoma City, one type W. Yellow parlor coach; Peoples Transport Corpn., Muskegon, 10 Twin urban coaches; St. Joseph Ry., Light, Heat & Power Co., four type W. Yellow city service buses; Twin City Rapid Transit Co., four buses from Wills Motor Co., two from White, two from Mack and three buses with gas-electric drive from General Motors; Union Transportation Co., Tulsa, two Mack city type; United Electric Railways Co., Providence, five model 54 White buses; United Railways & Electric Co., seven 19-passenger White buses; Virginia Electric & Power Co., 15 Twin urban coaches; Washington Rapid Transit Co., one type Y. Yellow parlor coach; Youngstown Municipal Ry., 10 Twin urban coaches.

Changes in Personnel

Executive & Operating

The Pennsylvania announces that **J. A. Appleton**, acting general superintendent of the Lake division, has been appointed general superintendent of the northwestern division, succeeding **Walter S. Franklin**, who resigned to become president of the Detroit, Toledo & Ironton. **P. L. Grove**, general superintendent of the Lake division, who was granted leave of absence in June on account of illness, has resumed his active duties. **F. L. Dobson**, who has been acting superintendent of the Pittsburgh division, has been appointed superintendent of that division.

Thomas Nelson Perkins, chairman of the executive committee of the Boston & Maine, has been elected acting president of that road to succeed George Hannauer, who died November 2.

A. P. Stevens, manager of district No. 2 of the car service division, A.R.A.,

The Jersey Central Is Merchandising Comfort

The Blue Comet, which flashes between New York and Atlantic City, is making a reputation for itself and passenger traffic is increasing by leaps and bounds.

Why?

It's a fast train. It's a new train. It is well advertised. But above all it is comfortable. The Hale and Kilburn No. 900 Double Rotating Chairs in the coaches are as restful as Pullman Parlor Car Seats. Every passenger rides in a separate chair with deep, soft cushions. Every passenger arrives at his destination relaxed, refreshed and FULLY APPRECIATIVE OF THE REASON FOR IT.

These are luxurious times and the merchandising of comfort and luxury are definite factors in the sale of transportation. The Central Railroad of New Jersey is only one of numerous common carriers who are successfully using comfort as an argument for increased riding.

HALE & KILBURN SEATS

"A Better Seat for Every Type of Modern Transportation Service"

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General Office and Works: 1800 Lehigh Avenue, Philadelphia

SALES OFFICES

Hale & Kilburn Co. [illegible] Bldg., New York — [illegible]
Hale & Kilburn Co. [illegible] Bldg., Chicago — W. J. [illegible] Mission Bldg., [illegible]
E. A. Thorswell, [illegible] Bldg., Washington — W. D. [illegible] Dispatcher Bldg., Houston, Texas
H. M. [illegible] 236 N. Sixth St., Portland, Ore.

V. V. Boatner

at Detroit, has been appointed manager of district No. 8, with headquarters at New York, to succeed **E. J. Cleave,** granted leave of absence because of ill health. **C. R. Megee,** car service agent of the car service division, succeeds Mr. Stevens at Detroit.

T. P. Brewster, telegraph and telephone supervisor on the Coast lines of the Santa Fe, has been appointed assistant superintendent of telegraph with headquarters as before at Los Angeles.

The Midland Valley announces that **J. L. Higgins,** superintendent of transportation with headquarters at Muskogee, Okla., has been appointed assistant vice president to succeed **W. M. Whitenton,** who retired October 1.

A. A. Hartman has been elected president of the Virginia & Truckee, with headquarters at New York, to succeed Ogden Mills.

The Louisville & Nashville announces that the headquarters of the Kentucky division, of which **J. G. Metcalfe, Jr.,** is superintendent, has been moved from Paris, Ky., to Latonia.

E. I. Rogers, chief engineer of the Peoria & Pekin Union, has been elected president with headquarters as before at Peoria. Mr. Rogers, who entered Illinois Central service in 1897, was born in 1876 at St. Joseph, Mo. He was graduated from the University of Missouri with the degree of civil engineer, and started railroading as a track apprentice, was promoted to instrumentman and then to assistant engineer. From 1911 to 1912 he was roadmaster of the New Orleans division. For the next four years he was employed by the Lorimer & Gallagher Construction Co. at East St. Louis and as chief engineer of the Texas City Terminal Co., Texas City. He returned to the Illinois Central in the valuation department in 1916, was appointed roadmaster of the Iowa division and remained in this position until 1921 when he was appointed chief engineer of the Pekin & Peoria Union.

Victor V. Boatner, who was elected president of the Chicago Great Western on October 7, began his railway career as a station helper on the Illinois Central at Elizabeth, Miss. That was in May, 1901. Three months later he became clerk to the trainmaster at Greenville. During the following years he was a copy operator in the dispatchers' office, train dispatcher, chief dispatcher, and trainmaster. He was made superintendent of the New Orleans division in 1916 and a year later was transferred to the Memphis division, remaining there until his election in 1921 to the presidency of the Peoria & Pekin Union. Mr. Boatner is 48 years old.

T. K. Faherty, superintendent of the Monongah division of the B. & O., has been appointed superintendent of the

E. I. Rogers

Akron division, with headquarters at Akron, succeeding **H. G. Kruse,** who has been assigned to other duties on account of ill health. **H. R. Gibson,** superintendent of the Newark division at Newark, has been named to succeed Mr. Faherty. **C. G. Stevens,** superintendent of the St. Louis division, with headquarters at Washington, Ind., has been appointed to succeed Mr. Gibson, and will be succeeded by **W. C. Baker,** assistant superintendent.

E. D. Holcomb, superintendent of the Illinois division of the Illinois Central, has been made general superintendent of the Yazoo & Mississippi Valley to succeed **F. R. Mays,** promoted. **J. L. Downs,** district engineer of northern lines of the Illinois Central, has been

E. D. Holcomb

appointed superintendent of the Illinois division, succeeding Mr. Holcomb. **W. R. Gillam,** roadmaster of the St. Louis division, has been promoted to district engineer, succeeding Mr. Downs. Mr. Holcomb entered the service of the Illinois Central as a car record clerk at Kankakee, Ill., in 1900. During the following years he held the positions of clerk and chief clerk in various offices, being made chief clerk to the general superintendent of transportation, Chicago, in 1917. He was promoted to district trainmaster on the St. Louis division in 1919, superintendent of the Springfield division in 1926, and superintendent of the Illinois division in 1929.

Financial and Legal

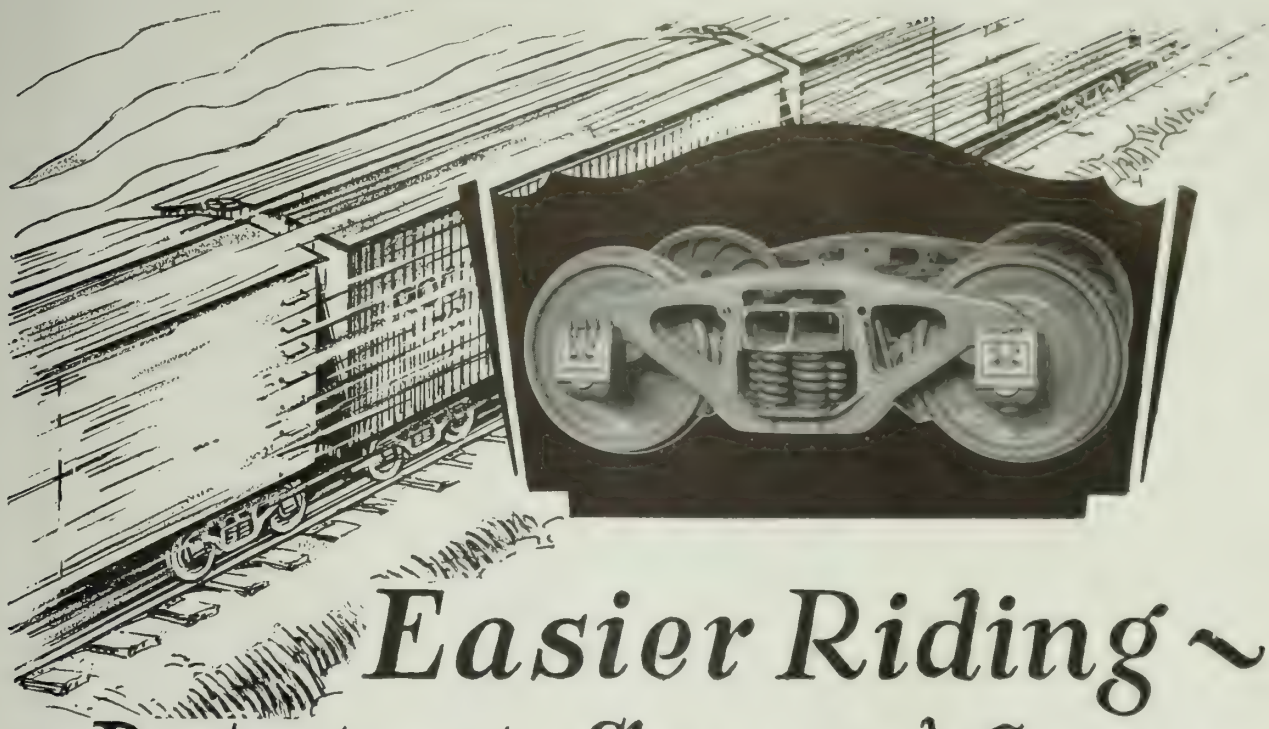
Henry Foulkes, supervisor of mail service of the Lackawanna, with headquarters at New York, has been appointed superintendent of mail service. The position of supervisor of mail service has been abolished.

William Wyer, vice president of the D. & R. G. W., and the Texas-New Mexico, and vice president, assistant secretary and assistant treasurer of the Gulf Coast Lines, the International-Great Northern and the San Antonio-Uvalde & Gulf, has been appointed secretary and treasurer of the Missouri Pacific with headquarters as before in New York. Mr. Wyer succeeds **H. L. Utter,** retired after 39 years' service.

Purchases & Stores

The Northern Pacific announces that **Eldred L. Cates** has been appointed division storekeeper with headquarters at Dilworth, Minn., to succeed **M. O. Weber,** resigned.

John E. Mahaney, superintendent of



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Protection to Shipper and Carrier

Bettendorf-Dalman "One Level" Trucks go a long way toward smoothing out the "rough spots" encountered in present-day freight handling. Their design is such as to maintain resiliency under heavy loads and road shocks, thereby insuring the *easy riding* qualities so necessary where fast train schedules prevail. Continuous car service and adequate protection to the shipper's commodity while in transit is thus provided.

High speed freight handling can return maximum profits only when the equipment is designed for that type of service. In this connection, Bettendorf-Dalman "One Level" Trucks leave nothing to be desired.

The Dalman Feature Adds Two Standard Coils to Each Spring Group

Greater safety to the lading is achieved by a reserve spring capacity more than ample to withstand the heaviest kind of service without the hazard of spring breakage.

THE BETTENDORF COMPANY

OFFICES AND WORKS BETTENDORF, IOWA

stores of the Chesapeake & Ohio, with headquarters at Richmond, has been appointed general supervisor of stores of that road, the Hocking Valley and the Pere Marquette, with headquarters at Cleveland. Mr. Mahaney's former office has been discontinued.

Traffic

J. F. Bon, assistant general freight agent of the Western Pacific at San Francisco, has been appointed general freight agent to succeed **J. D. Mansfield**, deceased. **F. H. Hocken**, assistant general freight agent, has been appointed assistant to freight traffic manager with headquarters as before in San Francisco. **W. G. Curtiss**, general agent at Oakland, has been transferred to San Francisco. **J. H. Coupin**, commercial agent at San Francisco, will succeed Mr. Curtiss at Oakland, and will be succeeded by **D. C. Wilkins**, contracting freight agent.

W. G. Ferstel has been appointed general traffic manager of the Continental Air Services, with headquarters at Chicago.

F. A. Stine has been appointed manager of the dining car and commissary department of the B. & O. with headquarters at Baltimore to succeed **E. V. Baugh**, deceased. Mr. Stine has been superintendent of dining car service for the past ten years on the Lackawanna.

J. T. Saunders, freight traffic manager of the Southern Pacific at San Francisco, has been appointed vice president, system freight traffic, and **F. S. McGinnis**, passenger traffic manager at San Francisco, has been appointed vice president, system passenger traffic. They will have offices at San Francisco and Houston. Mr. Saunders and Mr. McGinnis will have supervision over traffic matters of the Southern Pacific system, which includes the Pacific lines, the Texas & New Orleans R. R. and the Southern Pacific Steamship Lines. **C. S. Fay**, traffic manager at Houston, has been appointed vice president and traffic manager of the Texas & New Orleans. **H. A. Hinshaw**, assistant freight traffic manager of the Pacific lines, has been appointed general freight traffic manager with headquarters in San Francisco. **E. W. Clapp**, traffic manager at Chicago, has been appointed general passenger traffic manager of the Pacific lines with headquarters in San Francisco. **F. H. Plaisted**, freight traffic manager at Chicago, will continue in that position. **C. T. Collett**, freight assistant at Chicago, has been appointed assistant freight traffic manager there. **O. P. Bartlett**, passenger assistant, has been appointed passenger traffic manager at Chicago. **S. C. Chiles**, general agent, freight department, New York, has been appointed general eastern freight agent there. **H. H. Gray**, general agent, passenger department, New York, has been appointed general eastern passenger agent there. Appointments on the Pacific lines are: **H. C. Hallmark** has been appointed assistant general freight traffic manager with headquarters in San Francisco; **M. A. Cummings**, freight traffic manager, central district, in San Francisco; **F. E. Scott**, freight traffic manager, southern district, at Los Angeles; **J. H. Mulchay**, freight traffic manager northern district, at Portland, Ore.; **H. W. Klein**, general freight agent, central district, at San Francisco; **L. C. Zimmerman**, assistant general freight agent, at San Francisco; **A. M. Levy**, assistant general freight agent, at Los Angeles; **W. H. Francis**, assistant general freight agent, at El Paso. **F. C. Lathrop** has been appointed passenger traffic manager, central district, with headquarters at San Francisco; **C. L. McFaul**, passenger traffic manager, southern district, at Los Angeles; **J. A. Ormandy**, passenger traffic manager, northern district, at Portland; **N. Kinell** and **F. E. Watson**, assistant general passenger traffic managers at San Francisco; **J. E. Warren**, assistant to general passenger traffic manager at San Francisco. Appointments for the

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"Does the Work of an Army of Men"
SNOW PLOW ★ ICE CUTTER ★ DITCHER
UNIVERSALLY STANDARD
O. F. JORDAN COMPANY
WALTER J. RILEY, PRESIDENT
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JORDAN
SPREADER - DITCHER

Indispensable in mines, on railways, public works, industrial plants, etc.

Built in Standard and Narrow Gauge Sizes

Texas and Louisiana were: **S. G. Reed**, freight traffic manager, at Houston; **J. T. Monroe**, passenger traffic manager, at Houston; **T. G. Board**, assistant freight traffic manager at Houston.

J. J. Monks, assistant freight traffic manager of the New York Central, has been appointed freight traffic manager of the Pittsburgh & Lake Erie, with headquarters as before at Pittsburgh. **T. R. Fitzpatrick**, general coal freight agent of the Pittsburgh & Lake Erie, has been appointed coal traffic manager, with headquarters as before at Pittsburgh, and the office of general coal freight agent has been abolished. **D. G. Hood**, coal freight agent, has been appointed assistant to the traffic manager, with headquarters as before at Pittsburgh. **J. J. Snyder** has been appointed coal freight agent at Pittsburgh to succeed Mr. Hood. **J. W. Glover** has been appointed coal freight representative at Pittsburgh. **H. L. Betizel** has been appointed chief of tariff bureau, Pittsburgh, with duties in connection with tariffs, rates and divisions. **G. F. Campbell** has been appointed division freight agent at Youngstown, Ohio. **R. W. Kamerer** has been named general agent, Pittsburgh, to succeed Mr. Betizel. **H. B. Stapleton** has been named general agent at Brownsville, Pa.

F. E. Watson, general passenger agent of the Southern Pacific, with headquarters at Los Angeles, has been appointed assistant passenger traffic manager, with headquarters at San Francisco. **Henry P. Monihan**, district passenger agent at Los Angeles, has been named to succeed Mr. Watson.

Floyd R. Mays

H. N. Roberts has been appointed assistant general freight agent of the St. Louis Southwestern of Texas, with headquarters at Tyler, to succeed **D. S. Brown**, deceased.

Mechanical

Floyd R. Mays, general superintendent of the Yazoo & Mississippi Valley, has been appointed general superintendent of motive power of the Illinois Central, to succeed R. W. Bell, deceased. Mr. Mays was born at Crockett, Va., August 28, 1879, and was educated in the public schools of Bristol and Roanoke. After completing a mechanical engineering course, he was employed as a machinist apprentice for the Norfolk & Western at Roanoke. Next he served the Southern as a machinist at Salisbury, N. C., and at Selma, Ala. He entered the service of the Yazoo & Mississippi Valley as a machinist at Memphis in 1901, and became successively locomotive engineer, instructor on transportation rules, traveling engineer, assistant trainmaster, trainmaster, and superintendent. Mr. Mays was appointed general superintendent of the Yazoo January 1, 1926.

John B. Neish, master mechanic of the St. Paul division of the Northern Pacific, with headquarters at St. Paul, has been appointed assistant to the mechanical superintendent of the western

MAXIMUM FUEL ECONOMY

Constantly increasing superheat temperatures and greatly extended locomotive runs demand the use of a dependable wearing material for the parts subjected to constant friction and high temperatures.

Valve and Cylinder wearing parts made of HUNT-SPILLER AIR FURNACE GUN IRON insure steam-tight operation, thus preventing the waste of fuel at the most vital parts of the locomotive.

Performance reports on high pressure locomotives have proved conclusively that the superior wear-resisting qualities of HUNT-SPILLER AIR FURNACE GUN IRON assure maximum fuel economy at minimum maintenance costs.

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district, with headquarters at Seattle. Mr. Neish takes over the duties of general master mechanic of the western district, which office has been abolished. **Norbert E. Entrikin,** assistant master mechanic of the Fargo division, with headquarters at Staples, Minn., has been appointed master mechanic of the St. Paul division, with headquarters at St. Paul and the position held by Mr. Entrikin has been abolished.

H. P. Allstrand, assistant superintendent of motive power and machinery of the Chicago & North Western, has been appointed principal assistant general superintendent of motive power and machinery with hedaquarters at Chicago. The position of superintendent of motive power and machinery held by **H. L. Harvey,** deceased, has been abolished.

M. W. DeWitt, assistant road foreman of engines of the Pennsylvania, Logansport division, has been appointed road foreman of engines, Columbus division, to succeed **D. H. Jenness. R. Harbison,** assistant road foreman of engines, Cincinnati division, has been named to succeed Mr. DeWitt. **W. A. Shields,** engineman, Ft. Wayne division, has been named to succeed Mr. Harbison. **C. G. Brown,** assistant master mechanic, Philadelphia division, has been appointed master mechanic at Indianapolis to succeed **C. K. Steins,** promoted.

J. A. Sheedy, master mechanic, Wilmington, has been named superintendent motive power, northwestern division, to succeed **H. H. Haupt,** promoted.

Civil

The New Haven announces that **Robert L. Pearson,** engineer maintenance of way, has been appointed chief engineer, with headquarters at New Haven. **Paul Sterling,** assistant to the engineer, maintenance of way, has been appointed assistant to the chief engineer, with headquarters as before at New Haven. **P. R. Leete,** assistant valuation engineer, has been appointed valuation engineer with headquarters as before in Boston. **L. E. Little,** assistant corporate engineer, has been appointed corporate engineer with headquarters as before in Boston.

F. D. Kinnie, division engineer of the San Francisco Terminal division of the Santa Fe, with headquarters at San Francisco, has been appointed district engineer of Coast lines, with headquarters at Los Angeles. **O. R. West,** division engineer of the Arizona division, with headquarters at Needles, Cal., has been named to succeed Mr. Kinnie at San Francisco. **R. E. Chambers,** assistant division engineer of the valley division, with headquarters at Fresno, has been named to succeed Mr. West.

The Lehigh Valley announces that **J. F. Donovan,** division engineer at Easton, has been appointed assistant chief engineer of maintenance, with headquarters at Bethlehem, and will be succeeded at Easton by **R. E. Patterson,** division engineer at Sayre, Pa. **A. B. Shimer,** assistant division engineer at Auburn, N. Y., will succeed Mr. Patterson at Sayre. The positions of general inspector maintenance of way and assistant division engineer, Auburn division, have been abolished.

Douglas M. Burckett has been appointed electrical engineer of the Boston & Maine, with headquarters at Boston.

G. S. Lovering, principal assistant engineer of the Minneapolis & St. Louis, has been appointed assistant chief engineer, with headquarters as before at Minneapolis.

Obituary

Robert J. Cary, vice president and general counsel of the New York Central, died November 7.

Ernest F. Harder, assistant to vice president of the Westinghouse Co., and for 40 years prominently identified with the electrical manufacturing industry, died at his home in East Orange, N. J., October 13, aged 71. His death was due to pneumonia. Mr. Harder, who was born in Germany, came to the United

IT DOESN'T JUST HAPPEN

Six million meals are served every year in Southern Pacific dining cars and restaurants.

"Safety" always has been an important part of Southern Pacific's policy in every activity and nowhere is it applied more effectively than in the care, preparation and serving of these 6,000,000 meals.

Every receptacle in which food is stored, both in terminal commissaries and dining cars, is sterilized by the use of live steam. Kitchen utensils are similarly purified. There's a dishwashing machine on every diner and dishes and eating utensils are sterilized as well as cleaned.

Table linen is issued in sealed containers.

Every commissary employe must be in perfect health. Frequent medical examinations assure this.

There is no more important safety feature in railroading than the care of the health of the passengers—but the same kind of care for comfort and safety is exercised in every one of the numerous details that make up Southern Pacific service.

SOUTHERN PACIFIC

J. J. Pelley and Mr. Hannauer

States when he was 25 years old and became a foreman at the Garrison Alley Works of the Westinghouse Co. of George Westinghouse at Pittsburgh. He was one of the first employes of the Westinghouse Electric & Mfg. Co. and remained with this organization all the rest of his life.

George A. Hannauer, president of the Boston & Maine, died in New Haven November 2, following a heart attack suffered while attending a football game. He was 56 years old. Mr. Hannauer had his first railroad experience in St. Louis at the age of 18, when he entered the employment of the Terminal Railroad Association as a clerk. He served later as a conductor, and in 1897 became chief clerk to the superintendent. His advancement from then on was rapid. By 1926 he was in charge of the New York Central's terminal operations at Chicago and vice president of the Indiana Harbor Belt. In 1927 Mr. Hannauer went to Boston as adviser in connection with the proposed unification of the Boston & Maine's freight terminals in that city. His suggestions were accepted and he remained as president of the system. In his two years and ten months with the road his rehabilitation program resulted in placing the Boston & Maine in sound physical and financial condition. He was the inventor of the automatic car retarder which eliminated "hump riding" in railway yards, and introduced to American railroading the Diesel direct drive locomotive. At his bedside when the end came were his wife and his life long friend, John J. Pelley, president of the New Haven.

Mr. Hannauer's funeral took place November 5 in a little cemetery chapel in Cambridge. When the bells tolled at 11 o'clock every train on the 2200 miles of Boston & Maine Railroad was stopped for a minute as a mark of respect. Among the long list of honorary pallbearers were the governors of four states, the presidents and vice presidents of many railroads and, most notable perhaps, these names: J. F. Gray, locomotive engineer; T. J. Killkelley, gang foreman, Billerica Shops; P. R. Valentine, general assistant, freight traffic department; Gilbert E. Boles, yard foreman; Miles Eaton, machinist, Billerica Shops; Percy Smith, clerk, accounting department; Frank W. Croston, general investigator, freight claim bureau.

William G. Lee, former head of the Brotherhood of Railroad Trainmen and one of the best known railroad labor leaders in America, died November 4 after a long illness.

Edward D. Hungerford, superintendent of the Iowa division of the Rock Island, with headquarters at Des Moines, died in that city October 5, aged 57.

B. A. Campbell, assistant superintendent of the western division of the Southern Pacific, with headquarters at Oakland, died in San Francisco September 24.

HOTEL MONTCLAIR

Room and Bath
Tub and Shower
$3 to $5
per day
For 2 persons
$4 to $6
per day
Suites
$8 to $12
per day
Special Monthly and Yearly Rates

49th to 50th Sts.
Lexington Ave.
NEW YORK CITY

800 Rooms
Each with Tub and Shower
Radio in Every Room

3 minutes' walk from Grand Central. Times Square, Fifth Avenue Shops important commercial centers, leading shops and theatres nearby. 10 minutes to Penn. Station.

Grand Central Palace only 2 short blocks away

S. Gregory Taylor, *President*
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An innovation IN Travel Comfort

Sun-Lounge Cars ON THE Capitol *Limited*

between Chicago-Washington and the East

Lv. Chicago - - - - 1.00 p.m.

IN keeping with its endeavor to provide the greatest measure of travel comfort and convenience for its patrons, the Baltimore & Ohio has now placed in service on *The* CAPITOL *Limited* new sun-room parlor-observation-lounge cars.

A spacious glass-enclosed sun-room, comfortably seating eight people, affords a splendid opportunity to view the passing scenery without the discomfort of dust and inclement weather.

An unusually large lounge, pleasingly decorated and furnished with comfortable chairs, settees and lounges of walnut, upholstered in colorful designs of mohair plush, writing desks, periodical and end tables, with softly shaded lamps.

Passengers may partake of their favorite soft drink and light refreshment served from the fully equipped soda fountain buffet.

The CAPITOL *Limited* also carries a Club Car and such special features as Train Secretary, Maid-Manicure, Barber-Valet and Shower Bath; Newspapers and Magazines.

Baltimore & Ohio

CONLEY

Solid Manganese

Self Guarded

SPRING FROGS

SHOWING SPRING FROG IN SERVICE

Are giving excellent service under severe traffic conditions on Railroads using them.

Twenty years successful service by CONLEY TYPE FROGS have demonstrated their merit for safe and economical service.

CONLEY FROG & SWITCH CO.

Memphis, Tenn.

R. W. Bell

H. L. Harvey, superintendent of motive power of the Chicago & North Western, with headquarters at Chicago, died at his home in Oak Park, September 19. Mr. Harvey had been with that railroad 30 years.

R. W. Bell, who resigned as general superintendent of motive power of the Illinois Central October 1, died October 14 at his summer home on Mackinac Island, Mich. Mr. Bell had been with the road 41 years. He was born in 1865 at St. Mary, Ont., and began railway work as an apprentice to the machinist trade. Completing his apprenticeship, he worked as a journeyman machinist on the Great Northern as a locomotive fireman, later leaving that railroad to become a locomotive engineer on the Burlington. Mr. Bell went to the Illinois Central in 1888 as a locomotive engineer, was appointed traveling engineer in 1899, general foreman of the Kentucky division in 1900, and was made master mechanic of the St. Louis division in 1901. He was then made assistant superintendent of machinery, superintendent of machinery and, in 1913, general superintendent of motive power.

Adolph F. Stark, vice president of the Economy Arch Co., St. Louis, died of heart disease in Topeka, October 22. Mr. Stark served an apprenticeship as machinist, worked at this trade practically all over the United States, and in 1917 became associated with the Locomotive Pulverized Fuel Co., as service expert, continuing in this capacity with that company and its successor, the Combustion Engineering Corpn., until 1921, when he became vice president of the Economy Equipment Corpn. He continued in that position until 1927, when he entered the organization of the Economy Arch Co., as vice president, which position he held at the time of his death.

J. L. Burdett, vice president of the New York Central, with headquarters at New York, died at his home in that city October 3, aged 77.

Clarence E. Gilmore, chairman of the railroad commission of Texas since 1923, died of heart disease at a hotel in San Antonio, Tex., October 10.

Supply Trade Notes

V. Vilette, representative of the **Westinghouse Air Brake Co.** at San Francisco, has been appointed Pacific manager there to succeed **H. S. Clark,** deceased. Mr. Vilette was formerly an engineer on the Southern Pacific and entered the employ of the Westinghouse Co. in 1917 at San Francisco.

The **Little Giant Co.,** Mankato, Minn., manufacturers of power hammers, announces that **Albert J. Sams,** Chicago, has been appointed exclusive railway sales representative.

F. B. Farmer, representative of the **Westinghouse Air Brake Co.** at St. Paul, has been appointed assistant to the director of engineering. **C. J. Werlich,** mechanical expert in the St. Paul office, has been named to succeed Mr. Farmer as representative. **V. B. Emerick,** formerly with the Locomotive Stoker Co., has been appointed mechanical expert at St. Paul.

The **Union Draft Gear Co.,** Chicago, announces the change of its name to the Cardwell Westinghouse Co. It will conduct the draft gear business formerly owned by the Westinghouse Air Brake Co. as well as that of the Union Draft Gear Co. These officers have been elected: **A. L. Humphrey,** president of the Westinghouse Air Brake Co., has been elected chairman of the board; **J. R. Cardwell,** president of the Union Draft Gear Co., has been elected president; **L. T. Canfield,** vice president of the Union Draft Gear Co., has been elected vice president; **C. H. Tobias,** secretary and treasurer of the Union Draft Gear Co., has been elected secretary-treasurer. The main office of the company will be at 332 S. Michigan ave., Chicago, with branches at New York, Pittsburgh, St. Louis and Montreal. The Westinghouse draft gear will be manufactured by the Westinghouse Air Brake Co. at its Wilmerding, Pa., plant as before.

H. H. Knowles, the Pacific Coast representative of the **Reading Chain & Block Corpn.**, Reading, Pa., announces the appointment of the **Murry Jacobs Co.**, Los Angeles, to represent the Reading Chain & Block Corpn. in southern California.

The industrial finishes division of **E. I. du Pont de Nemours & Co.** announces the organization of a transportation sales department to include railway, aviation and marine sales activities. **Alfred E. Pratt**, manager of railway sales, has been appointed manager of transportation sales with headquarters at Parlin, N. J. **Frank H. Crawford**, western manager, railway sales, has been promoted to eastern manager of transportation sales with headquarters at Parlin. **L. M. Ritchie**, district manager of railway sales at Cleveland, has been appointed western manager, transportation sales, with headquarters at Chicago. **Frank P. Quinn**, manager of marine sales, has been appointed district manager of transportation sales with headquarters at Parlin.

The **Wood Conversion Co.** announces the appointment of **D. H. Corlette** as manager of railroad and industrial sales, a newly created position, with headquarters in Chicago. This department will handle all sales to railroads, aircraft and motor coach manufacturers, government departments and industrial concerns. Mr. Corlette was graduated from Iowa State College in 1914, entering business as an estimator with a contracting firm. After three years as estimator and construction superintendent, he began selling pre-fabricated buildings, later becoming sales manager of the concern.

D. H. Corlette

He joined the sales force of the Minnesota & Ontario Paper Co. in 1921 and, in 1924, shortly after the Westinghouse interests established the Wood Conversion Co. to manufacture and market its insulating materials, he was engaged to [illegible] and develop new markets and possibilities of new products particularly among railroads and manufacturers.

Frank H. Clark, vice president and a director of the **Pilliod Co.**, New York, has been placed in charge of western sales, with headquarters at Chicago, to succeed the late **J. H. Cooper**.

Charles Rees, consulting engineer of the **Vanadium Corpn. of America**, has been appointed vice president in charge of mining operations.

C. H. MacDonald, director of sales and head of the market research department of the **Colorado Fuel & Iron Co.** Denver, has been elected vice president in charge of sales in California.

The **D. S. Mair Machinery Corpn.** has been organized by **D. S. Mair** of the D. S. Mair Machinery Co., Houston, and **Charles J. Harter**, railroad representative of Joseph T. Ryerson & Son, Inc. Mr. Harter will have charge of the Dallas office.

M. E. Danford, works manager of the Middletown division of the **American Rolling Mill Co.**, has been appointed assistant vice president.

'RALSTON BUILT'

Steel and Composite Cars

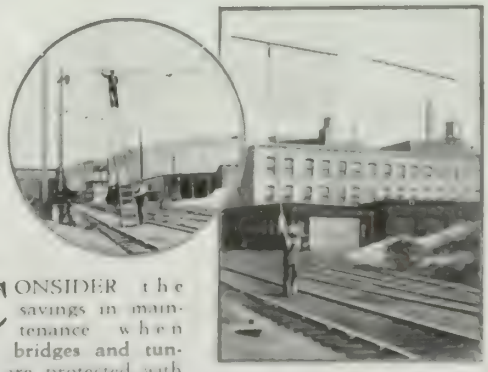
Completely rebuilding large numbers of steel cars in record time is an achievement that Ralston Steel Car Company has repeated time and time again.

This is possible only through our excellent facilities and well-balanced program, which, together with skilled workmen and competent engineers, keep the cars moving through the plant on regular schedule.

THE RALSTON PLANT is equipped to build New Cars, to Rebuild Old Cars, to Repair and to supply repair parts. All materials and work of the highest QUALITY and performed under expert Engineering Supervision.

RALSTON STEEL CAR CO.
COLUMBUS, OHIO

Are you sending out a crew of 3 or 4 to do the work of one man?



CONSIDER the savings in maintenance when your bridges and tunnels are protected with HASCO Hangers and Tell-tales.

No more need of sending a crew of 3 or 4 men over the road with a long ladder. HASCO Tell-tales are easily replaced by one man from the ground.

Consider also that HASCO Tell-tales rarely require any attention. Their design and construction eliminates as far as possible bending, corrosion and burning.

Let us tell you more about them

The Hastings Signal and Equipment Co.
53 State Street, Boston, Mass.

Lewis C. Haigh of the **Magor Car Corpn.** sales department at New York. Mr. Haigh joined the Magor Car Corpn. in 1922 and after serving for one year in the shops at Passaic, N. J., joined its sales force in New York.

The **Air-Way Electric Appliance Corpn.**, Toledo, announces the purchase of the entire business of **Erie Heating Systems, Inc.**, Erie, and the Erie industry has been moved to Toledo.

Joseph T. Ryerson & Son has purchased business, equipment and stock of the **Penn-Jersey Steel Co.** of Camden, N. J. The acquired company carries a complete line of shapes, plates, bars and other material.

Thomas Cardwell has been appointed representative for Missouri, Kansas, and Texas of the **Falls Hollow Staybolt Co.**, Cuyahoga Falls, Ohio, with headquarters in St. Louis.

Carl Mosier, secretary and treasurer of the **Union Asbestos & Rubber Co.**, with headquarters at Chicago, has been elected vice president and general manager. **Lewis J. Silverman**, who succeeds Mr. Mosier, will act also as general counsel.

N. B. McRee, service engineer of the **United States Graphite Co.**, has been appointed manager of railroad sales to succeed **W. R. Pflasterer**, resigned. Mr. McRee joined the company in 1926 as service engineer.

The **American Locomotive Co.** has acquired control of the **McIntosh & Seymour Corpn.** of Auburn, N. Y., manufacturers of Diesel engines for marine, stationary and transportation use. The McIntosh & Weymour Corpn. has made steam engines for many years and in 1914 turned its attention to the Diesel engine. The corporation will continue to operate under the present management, but as a subsidiary of the American Locomotive Co. The two companies have collaborated on the design and production of the first oil electric passenger locomotive to be placed in service by a railroad in the United States.

The Chief — Santa Fe
The California Limited
The Grand Canyon Limited
and four more
FAST TRAINS EAST every day
Nº 499 Best Personal Service
JAS. B. DUFFY
Assistant Passenger Traffic Manager
LOS ANGELES
W. J. BLACK
Passenger Traffic Manager
CHICAGO

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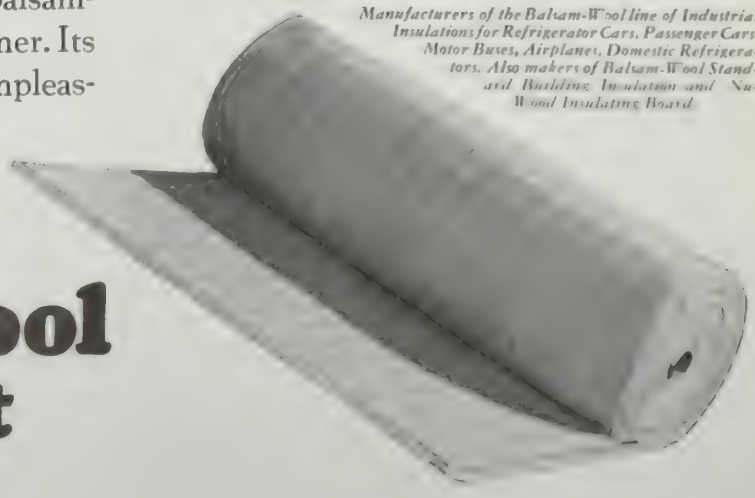

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Transportation

The National Monthly of the Transportation Industry

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Merry Christmas

and a

Happy New Year

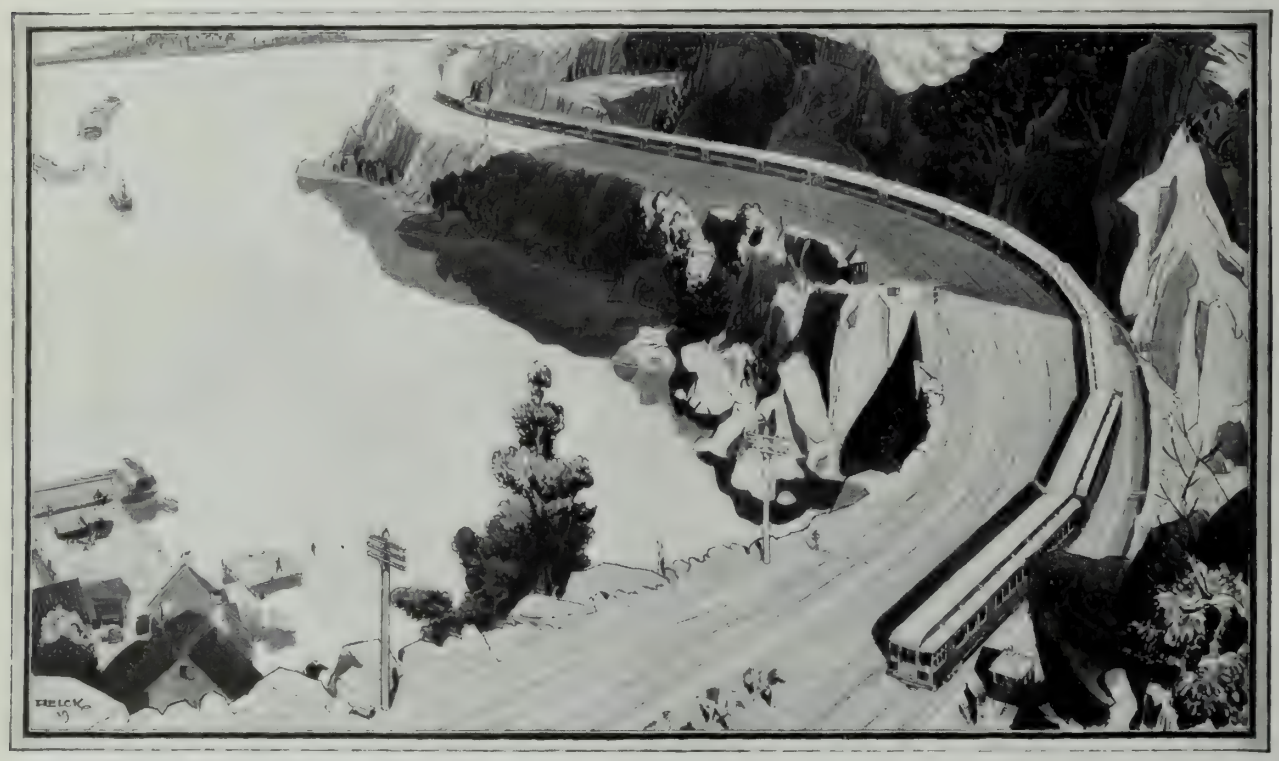
Vol. V December 1929 No. 6

RAILROADS are ever in the forefront of progress when it comes to improving conditions. Steel cars supplant wooden; nature's roadbed is fortified by rock ballast; heavier rails make their appearance—double tracks, more trains, mile-a-minute locomotives, automatic safety controls.

Then, as a final touch, the adoption of anti-friction bearings—Hyatt Quiet Roller Bearings.

Now nothing is lacking in speed, safety, silence or comfort...for Hyatts add that extra-smooth, noiseless, effortless gliding over the rails that insures complete relaxation.

The train that runs on Hyatts is the train they like to ride



All over the country you will find coaches, dining cars and Pullmans operating on Hyatt Quiet Roller Bearings.

They are doing away with jolting starts, sluggish pick-ups, and plain bearing "drag"...substituting in their place the velvet smoothness and restful comfort imparted through the use of quiet Hyatts.

And just as the Hyattway is the Comfort Way for the traveler, so is the Hyattway the Saving Way for the railroads.

Where Hyatt Quiet Roller Bearings are in use, more cars per train can be handled. Schedules are maintained, due to the elimination of the hot-box. Maintenance costs are reduced; depreciation of equipment is retarded; a notable economy in fuel consumption is effected. There is increased revenue and a greater public good will.

Hyatt Quiet Roller Bearings are helping to make today's train ride a pleasurable, comfortable trip. So mark you well—*the train that runs on Hyatts is the train they like to ride!*

HYATT ROLLER BEARING COMPANY

Newark Detroit Chicago Pittsburgh Oakland

HYATT

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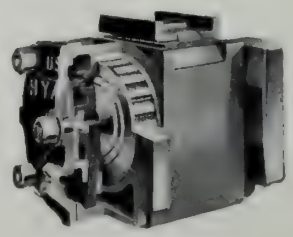
PRODUCT OF GENERAL MOTORS



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In keeping with this progress Schaefer brake gear details provide increased strength, reliability and safety at lower costs.

They are all drop forged from one piece of wear resisting steel, free from welds, lighter in weight and accurately dimensioned.

Every detail meets all A. R. A. requirements.

For long life, safety and low cost specify Schaefer foundation brake gear details for new cars and for replacements.

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SCHAEFER EQUIPMENT COMPANY

General Offices:

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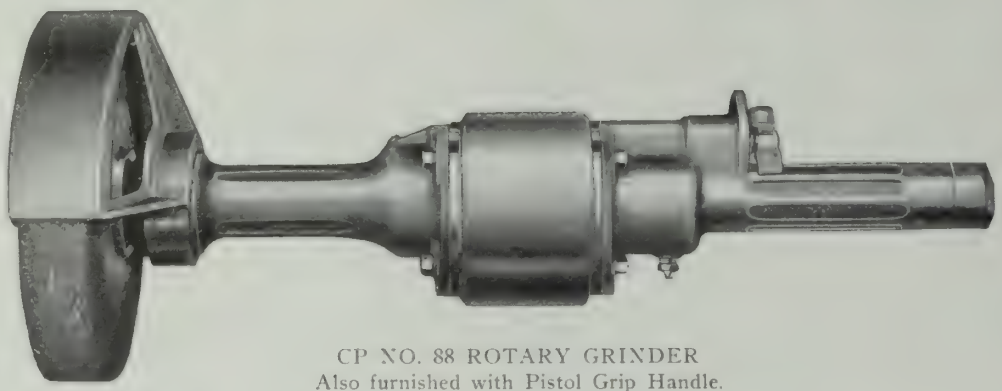
Exceptional POWER in this new, light-weight grinder



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Also furnished with Pistol Grip Handle.

THERE is MORE POWER per pound of weight in the No. 88 grinder than in any similar tool. Yet it is very easy to handle and simply constructed, employing a highly developed rotary principle. Mounted on ball bearings and so finely balanced as to be practically vibrationless, this new grinder has the additional advantage of EXTREMELY LOW MAINTENANCE—lower than you have ever believed possible! We'll gladly arrange a trial of a No. 88 in your own plant—address the nearest office.

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Transportation

(Reg. U. S. Patent Office)

The National Monthly of the Transportation Industry

DECEMBER, 1929

VOLUME FIVE — NUMBER SIX

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THE NEWS OF THE MONTH

LITTLE STORIES ABOUT BIG MEN

PUBLISHED BY

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Power Obsolete For Road Service Is Obsolete For Yard Service

OBSOLETE road engines in yard service are a drag on the whole railroad plant. They are unsuited for the work; consume much fuel and are incapable of the snappy service required for modern railroading.

With 25 modern Super-Power Switchers, one road increased the capacity of 16 existing yards and the resulting operating savings will pay for the engines in five years.

No railroad is justified in spending large sums of money for the conversion of worn out road engines into "makeshift" switchers, nor can it economically afford to operate old road engines in service for which they were never intended.

LIMA LOCOMOTIVE WORKS
Incorporated
LIMA, OHIO

Billions For The New Year

Big Programs Announced by the Railroads for 1930. Increased Activity Planned by Industries of Every Kind

No more encouraging outlook for business and industrial activity next year has been contributed than that created by the immediate response of railroad executives, in the closing days of November, to the call of President Hoover for help in strengthening public confidence following the disastrous Wall Street excitement. Summarizing the conclusions of conferences at the White House and in Chicago a statement from the Association of Railway Executives indicates that in 1930 the railroads will make capital expenditures of more than one billion dollars.

The economic aspect of the situation, so far as railroads are concerned, is most concisely described in the formal statement sent the President by R. H. Aishton, president, American Railway Assn., by authority of the executives assembled in Chicago. These executives, Mr. Aishton told the President, wished to assure him of their very sincere and earnest spirit of cooperation in the work he has undertaken. The statement showed the executives in their associations represent approximately 97 per cent of the total operating revenues and approximately 91 per cent of the total railway mileage in the United States. They realize the national importance to the social and economic well being of the country of business stability and prosperity and their duty so to discharge their transportation responsibilities as to make their service harmonize with the wisest and most intelligent judgment and plans for the public welfare.

"The program of capital expenditures already arranged for is impressive, amounting up to October 1 of this year to $1,247,792,000 for Class 1 railways, of which $673,972,000 remained on that date to be expended. This figure of $1,247,792,000 compares with a capital program of $902,-

At the White House Conference With the President: Front Row, Left to Right, Agnew T. Dice, President of the Reading; R. H. Aishton, President, A.R.A.; Secretary of Commerce, Colonel Lamont; Secretary of the Treasury, Mellon; Hale Holden, Chairman, Executive Committee, Southern Pacific; L. F. Loree, President, Delaware & Hudson. Standing, Jeremiah Millbank, Southern Railway; J. J. Bernet, President, Chesapeake & Ohio; P. E. Crowley, President, New York Central; J. J. Pelley, President, New Haven System; F. W. Sargent, President, C. & N. W.; Fairfax Harrison, President, Southern Ry.; A. W. Shaw, Washington; Julius Barnes, Chairman, Board of Directors, U. S. Chamber of Commerce.

307,000 for the same period of 1928, an increase of over 38 per cent.

"The number of freight cars on order on October 1 was 29,481, a greater figure than on the corresponding date in any year since 1924, and this number has been increased as of November 1 to 33,642, which is an increase of 27,561 compared with the same date a year ago.

"On October 1 there were 354 locomotives on order, compared with 113 on the same date in 1928 and 134 in 1927. There are also now on order approximately 1,500,000 tons of steel rails for delivery beginning early in 1930. It is estimated that this will be increased by orders for approximately 1,000,000 additional tons, which would make the rail deliveries in 1930 approximately 2,500,000 tons. Not believing that there is anything in existing conditions, to require it, the executives have no purpose whatever to reduce or abandon any part of this program. They are proceeding with confidence in the future business prosperity of the country and in reliance upon the full cooperation of industry in all its branches equally interested under these circumstances.

"It is their hope and expectation to proceed on at least a normal basis in their future capital and maintenance expenditures. A movement to increase them, however, has been started and is being actively and intelligently pressed forward."

In supporting their statement several of the more important lines made public their proposed budgets for 1930, something not done, except in extraordinary circumstances, before January. Indeed such information was supplied by a few roads whose officers never have disclosed such figures, preferring to make capital expenditures as they became necessary.

In this class is the Southern Pacific, whose president, Paul Shoup, announced, November 25, that the Pacific lines of his company contemplated new investment expenditures of more than $50,000,000 during the coming year, and that within the next ten days the company would place a $5,000,000 order for 120,789 tons of steel rail for delivery in 1930. The entire proposed budget will be for new equipment, extensions and betterments on the company's Pacific lines and its subsidiaries, the Northwestern Pacific and the Pacific Electric.

Major items listed in the company's improvement program for the coming year reveals that nearly all of the large expenditures will be in its operating equipment and facilities through labor, purchase and construction channels.

The company plans to expend $15,000,000 during the coming year for new sidings, heavier rail, ballasting of tracks and similar improvements.

Another appropriation of $8,300,000 will be made for the purchase of 576 units of operating and work equipment. These include 35 steam locomotives, two electric locomotives, 47 units of passenger train equipment such as dining, lounge and baggage cars, 400 units of freight train equipment and eight units of work equipment such as cranes, ditchers and steam shovels. In addition 60 cabooses and 20 locomotive tenders will be constructed at the company's shops.

Part of the rails ordered for delivery during 1930 will be used in constructing 75 miles of second track on the Overland, Coast and Sunset routes. This second track construction will cost $5,000,000.

Supplementing its $12,000,000 appropriation made this year for the construction of the Suisun Bay bridge and approaches to it, the company will expend a large sum for the

San Francisco Hopes to Get Started on Its Bridge Across the Bay in 1930. The Picture Shows One of the Proposals of the Engineers.

rehabilitation of its 29-mile San Ramon branch line between Avon and Radum. After reconstruction, this branch line will be used as a main line to handle north and south bound freight traffic routed over the new bridge. The bridge is now more than 20 per cent complete and probably will be opened to operation by Thanksgiving Day, 1930.

Other important items in the company's expenditure budget are for additional engine houses, yard and terminal facilities at important terminals; 46 miles of new signal dispatching system and improved water storage facilities. With the purchase of the steel rail, the railroad will also order during the coming year, 3,000,000 wood ties at a cost of more than $2,000,000 and rail trimmings such as plates, spikes and frogs, costing an additional $2,000,000.

With the newly contemplated expenditure for 1930, the railroad will circulate further additional money amounting to approximately $21,000,000 already appropriated for the current year (1929) but not yet expended. These sums will be spent as capital investment in the completion of important railroad projects now under way, such as the Suisun Bay bridge. Other projects now under way which the railroad will complete during 1930 are: 776 miles of new automatic signals. This is the last part of a $2,250,000 job which will fully equip all of the railroad's main lines. More than 452 miles under this are completed and the remainder will be finished during the first six months of 1930. In addition work is progressing on 43 miles of a $725,000 signal dispatching system which will be completed next year.

The company has begun work on the first unit of a new yard at Oakland. This unit involves the expenditure of $500,000. When the yard is completed it will represent an investment several times that amount and will have a capacity of 7,500 cars.

Another $950,000 expenditure now under way and to be completed during 1930 is a new double track and appurtenances, part of new yard facilities at Los Angeles.

The railroad is also pressing toward completion the construction of new and modern depot and 5.6 miles of double track line in San Jose. This work will continue next year. Of the estimated cost, $3,300,000, about $800,000 has been spent.

P&A Photo

Railroad Executives Who Met in Chicago to Discuss the President's Suggestions. W. B. Storey, A. T. & S. F.; F. E. Williamson, the Burlington; in front of him, V. V. Boatner, Great Western; H. A. Scandrett, the Milwaukee; R. B. White, Jersey Central; J. E. Gorman, Rock Island Lines.

The proposed improvement budget of the Rock Island Lines for 1930 will total about $50,000,000, according to President J. E. Gorman. This means an outlay of a little over $10,000,000 more during 1930 than in 1929, and represents the largest budget of expenditures in the history of the railroad. Of the total expenditure approximately $20,000,000 will be for new equipment consisting of:

41 locomotives
5000 freight train cars
24 passenger train cars
62 work cars

Expenditures for other improvements and betterments will approximate $26,000,000, of which about $6,000,000 will be charged to operation and the balance to capital account. This sum will be further increased if the Interstate Commerce Commission grants the petition of the Rock Island for permission to build a new line of railroad from Shamrock, Texas, to Quanah, Texas, and from Quanah to Beaver Creek, south of Vernon, Texas, 110 miles. The estimated cost in round figures is $5,500,000.

Exclusive of the proposed new Texas lines, the expenditures for new lines, second main track and roadway improvements in 1930 will approximate $15,000,000, covering continuation of the St. Paul and Kansas City short line, Trenton to Birmingham, Mo., and a new line from Dalhart to Morse, Texas, (C. R.I.&G.) a distance of 60 miles, $2,000,000. The new Trenton-Birmingham line contemplates a continuous program involving an ultimate expenditure of $11,000,000.

A total of $1,200,000 is set aside for ballasting during 1930. Over 57,000 tons of new rail, most of which is 110 pounds to the yard, also is provided for. The installation of 126 miles of dispatcher's control and automatic block signal system between Herington and Pratt, Kansas, involves an expenditure of $800,000.

General W. W. Atterbury, president of the Pennsylvania Railroad, issued a statement promising that company's full support and cooperation in the plan of President Hoover for the continuation of steady work and employment to American industries by carrying out its announced program of improvement work. For that purpose the board of directors took the first step to provide the necessary funds. The directors believe that this policy will have the full support of the stockholders and of the public at large.

The stockholders recorded on the books of the company at the close of business December 7, 1929, are therefore to have the privilege of subscribing to new stock at par ($50 a share) to the extent of 12½ per cent of their

recorded holdings, or about $72,000,000.

The new capital received from the sale of the stock will provide for the payment of maturing obligations in 1930, necessary additions, betterments and improvements to, and upon, the property of the company; additional equipment and facilities; reimbursement of the treasury for similar outlays for capital purposes heretofore made, as well as for other corporate purposes.

With its electrification program well under way the Pennsylvania is expected in the near future to order the first of $40,000,000 worth of new passenger and freight electric locomotives which will be used when the project is in full operation in about five or six years. Total electric locomotives required for the new electrified operation are estimated by the company at between 375 and 400, at an estimated cost of $100,000 per unit. The company has not made any official announcement on the subject, but it has been reported that the first contract might include 150 locomotives at a cost of $16,000,000.

These electric locomotives are part of the $100,000,000 electrification program of the Pennsylvania Railroad, which was first outlined by General Atterbury in October, 1928. Of the $100,000,000 estimated cost, about 60 per cent or $60,000,000 will be expended for catenary transmission lines and sub-station construction and the remaining 40 per cent or $40,0000,000 for rolling stock.

Present plans of the Santa Fe for improvements and betterments call for the expenditure of from $20,000,000 to $24,000,000 in 1930, W. B. Storey, president, stated. Should the Interstate Commerce Commission authorize construction of 380 miles of new road, application for which is pending, this construction would require an outlay of about $15,000,000, bringing the total capital expenditures for the year to around $35,000,000 to $40,000,000, he said.

The North Western's tentative budget is $70,000,000 for equipment, materials, supplies and other expenditures of that nature during 1930, but only about $20,000,000 will be charged to capital account, according to President Sargent. The remainder, $50,000,000, is to be expended for maintenance work.

In all probability the Burlington will expend between $30,000,000 and $32,000,000 for equipment in 1930, Frederick E. Williamson, president, stated. The expenditure of this amount is partly contingent upon authorization by the commission of a new line in Texas.

According to L. W. Baldwin, president of the Missouri Pacific, that carrier's budget for 1930 calls for the expenditure of approximately $10,000,000 for new equipment.

Charles Donnelly, president of Northern Pacific, said: "Although our figures are not complete I would say that our capital expenditures budget for 1930 would be at least as high as in 1929, with the possibility that it may be $6,000,000 to $8,000,000 higher because of the new construction we have in contemplation."

C. E. Denny, president of Erie Railroad, said: "Our budget for 1930 is still in the making, but it will be reasonably large. Including a certain amount of operating expenses, we have spent $82,000,000 on improvements to property in the last three years. The expenditure of 1929 will amount to about $32,000,000."

Carl R. Gray, president of Union Pacific, said: "Our capital expenditure program has been running along on a pretty regular basis since the war and I should say that our program for 1930 will about approximate the average. It will certainly be no less than usual. There will be no new construction except the Boulder Canyon line, on which we are awaiting authorization. We are also awaiting a decision on the line in the Olympic Peninsula, which we contemplate building with the Northern Pacific. Our rail orders for 1930 have all been placed. Our equipment orders as usual will be placed in December or January."

Estimates just prepared by the Milwaukee to show probable expenditures in 1930, indicate the road will contribute to the business activities of the country next year a total of over $150,000,000, according to H. A. Scandrett, the president. This sum includes the cost of 300 ore cars, ordered in the first week of December, also 600 flat, 70 box, 1000 gondolas, and 750 stock cars, orders for which probably will be placed soon. It also includes expenditures for new passenger cars, which will be built in company shops, and a considerable amount of new work equipment. The Milwaukee also plans to buy 15 freight locomotives in addition to 15 high speed passenger locomotives now being constructed.

The New York Central is to relocate certain sections of its main line on the west side of New York City at grades both below and above the street level to eliminate hazardous grade crossings and improving freight service to and from the city. Relocation of the freight tracks proposed will cost $69,450,893, to be paid by the State of New York, the city of New York and the New York Central, in proportionate shares. The estimated $69,450,893 cost of the project is exclusive of electric power facilities and locomotives. It is subdivided into $805,000 for engineering; $36,822,838 for land; $6,799,975 for grading; $2,741,000 for elevated structures; $129,250 for ties; $129,850, rails; $176,650, other track materials; $177,450, ballast; $247,815, track-laying and surfacing; $42,050, right of way fence; $9,830,875, crossings and signs; $11,365,090, stations and office buildings; $50,050, shops and enginehouses, and $133,000 for underground conduits. All of which means work, wages, money in circulation. As all business men as well as those who actually do the work are interested in every item added to the prosperity program, much cheer will be found in the news from San Francisco in the contemplated expenditure of $333,000,000 in new construction in the next five years, $65,000,000 of it in 1930, announced by the Pacific Telephone and Telegraph Company. H. D. Pillsbury of the company referred to the plans as the company's response to President Hoover's prosperity budget plan.

Expenditures on the five-year budget in Northern California and Nevada will total $149,000,000; in Washington, Oregon and Western Idaho, $85,000,000; in Southern California, $99,000,000.

New construction in 1930 will cost nearly $7500 an hour, compared with nearly $7000 an hour this year. The contemplated expenditures for 1930 and the four years succeeding will break all records for new telephone construction, the announcement said. Following the President's conference with railroad executives other great leaders answered a similar call with the result that it is now safe to say that construction and improvement programs in the United States during the coming year will aggregate more than nine billion dollars, divided among industrial, public utility, railroad and state and municipal programs.

Next year's construction program is estimated as follows: Industrial corporations, $3,500,000,000; public utility, $2,000,000,000; state and municipal, $1,921,800,000; railroad, $1,250,000,000, and federal government, $750,000,000. Total, $8,421,800,000.

Getting Out of the Red

By

Lesley C. Paul

The Original Gas-Electric Car of the Reading Placed in Service in 1924 Between Trenton and Trenton Junction, N. J.

THE HISTORY of many a branch line, built in the halcyon days that are gone is written now in red ink. Private automobiles, bus lines, higher wages, higher costs for everything, keen competition, have made men seek for better tools. Just as the big hour always produces the man to meet it so has the demand for higher efficiency in operation of branches brought the answer, in this case the gas-electric rail car, to solve the traffic problems.

The gas-electric rail car is no novelty. The Westinghouse Electric and Mfg. Co. started to build equipment for gas-electric rail cars in 1902, and by 1912 had completed 70. Some of these are running today. However, due to the limited horsepower of these early cars, the state of the art of gasoline engine design, the maintenance difficulties existing at that time, and to other reasons, little interest was taken in this form of motive power until after the World War. Then radical changes occurred in many of the conditions affecting the gas-electric car. On the one hand, the mechanical and electrical equipment of the car was developed to a high state of excellence; while on the other, many branch railroad lines, which had previously been profitable, went into red because of rising costs and dwindling traffic.

Forty railroads in the United States are operating 178 gas-electric cars today equipped by Westinghouse and involving 201 units of equipment. Among these are the Great Northern, New York Central, Big Four, Reading, Chicago & North Western, and the Chicago, Milwaukee, St. Paul & Pacific. The officials of all of these railroads are enthusiastic about the future possibilities of the gas-electric car. Ralph Budd, president of the Great Northern, which operates 33 gas-electric cars, says some railways have sought to remove unprofitable local passenger trains, wherever it could be done, on the theory that the lack of patronage is conclusive evidence of the preference of the public for other means of local transportation. These railways have also, wherever possible, substituted more economical and smaller units of transportation for those essential local passenger runs which could not be discontinued.

"The gas-electric rail car," says Mr. Budd, "is one of the means used to this end, and the motor bus on the highway is another. The Great Northern has in use 33 gas-electric cars which make nearly 2,000,000 train miles a year. The gas-electric car, of course, has a good deal of the inflexibility inherent in railway service, because it is confined to the track and stops at railway stations on railway right of way, and therefore some distance from stores, hotels and residences.

"I do not think that the use of gas-electric rail cars will attract or hold any considerable travel to the railways, but where they afford appropriate accommodations they will reduce the cost of operating such passenger train service as must be maintained for public convenience. In many cases this passenger train service is necessary, not so much for passengers, but to take care of the growing parcel post, express and milk traffic.

"I think the use of gas-electric rail cars will be increased, because I believe more of the railways will come to believe that the only means for meeting their greatly reduced passenger revenue is by decreasing the local service and providing such as must be maintained at lower cost by means of gas-electric cars rather than attempt to recover the loss by maintaining unprofitable train service and lowering rates."

F. H. Hardin, assistant to the president of the New York Central,

The Great Northern Gas-Electric Car Placed in Service in 1925 Between Benson, Minn., and Huron, S. D.

says the New York Central Railroad has at present in service 25 cars. In addition the New York Central System Lines has 12 cars now in service.

"The use of these cars is the result of the decrease in passenger traffic on certain branch line territories, with the result that the operation of steam trains has become in these days very expensive," says Mr. Hardin. "It has, therefore, been found possible to meet the existing service by the introduction of the motor rail car, which has resulted in most cases in a material saving in operation.

"The cars now in use are not uniform in design, but vary in accordance with service requirements. Inasmuch as these requirements vary to a considerable extent, decision to operate a rail motor car is based on careful analysis of each particular situation. Up to date the operation of these cars has been satisfactory."

C. S. Millard, general manager of the Big Four, says: "The experience we have had on the Big Four in the operation of gas-electric motor cars for handling branch line passenger traffic and local passenger traffic on main lines has resulted in a material saving in operation. The cost of operating gas-electric cars is only 66 per cent of the cost of steam service.

"We have not been able to increase the volume of traffic on the local trains for the reason that the private automobile and bus line competition is very strong, and there has been a gradual decrease in local traffic, not only in the territory served by the Big Four, but generally throughout the country; therefore it behooves the operating officers to reduce the cost of operation to offset this reduction in revenue. This can be done by the use of motor cars to a considerable extent.

"In branch line territory where the highways are not well developed, undoubtedly the use of motor cars results in the handling of the traffic at a reduced cost, thereby obviously resulting in an increase in the net income, even though additional traffic is not obtained. The gas-electric cars are very dependable, our experience being that they have operated 89 per cent of their potential mileage. In my opinion, the future is very bright for the extension of this service, particularly on branch lines."

Gas-electric rail car operation on the Reading lines began in 1925 by the purchase of one car for the Trenton branch, operating between Trenton and Trenton Junction, a distance of 3.7 miles, and operating 21 round trips every 24 hours. Three more gas-electric cars were purchased in 1927, operating all local service between Trenton Junction and Bound Brook, 27 miles, combined with the Trenton branch service. Since that time nine additional cars have been purchased. F. M. Falck, general manager of the Reading Company, says:

"These cars are all in operation in lieu of local steam service and are operating an aggregate of 1766 miles per day.

"The substitution of this equipment for steam service," says Mr. Hand, "has resulted in very material saving in operating costs without reduction in service and has been commented upon favorably by our patrons."

The Chicago & North Western, operating 33 cars, finds gas-electric cars "reliable and satisfactory" and "money savers". George W. Hand, assistant to the president of the Chicago & North Western, says that road began using gasoline-electric self-propelled passenger cars in July, 1925, when one car of this type was placed in daily service between Milwaukee and Adams, Wis., where it made a round trip of 249 miles. Three similar cars were added in 1926 and five in 1927. Fourteen were added in 1928 and ten more were placed in service in 1929, making a total of thirty-three now in service. Mr. Hand says:

"These cars are similar to each other in general features but have each been planned for some particu-

This New York Central Gas-Electric Car Was Placed in Service in 1926 Between Watertown and Newton Falls, N. Y.

lar run and have had length, floor plans, space arrangement and power made to suit the requirement of the service. Twenty-four of the cars have been equipped with what is known as the single unit power plant and have been placed in local runs, mostly on branch lines where the service did not call for more than a one or two-car train. Nine of the cars have dual power plants and are used in somewhat heavier service, of similar character, however, in other particulars.

"They have been distributed widely over the system so that they now encounter diversified operating conditions. We have found them to be reliable and satisfactory and well adapted to the performance of the kind of service these runs require whenever it does not vary too much from day to day and from season to season and does not call for too much variation in train consist to permit keeping it within the limits of the capacity of the power plant carried. Where these conditions are found and where the run is such that no other train or train crew can cover it, these cars are money savers.

"The relation between the costs of operating trains handled by these cars and the corresponding costs of steam operation varies with numerous factors and range from a cost per train mile for gasoline-electric as low as one-half to as high as three-fourths the cost of steam train operation. Obviously, the relation of these costs depends in a great measure upon the relation between the cost of gasoline and the cost of coal. Lately this has been very favorable to gasoline. Another factor is the relative man-hours required, which also has been up to this time in favor of this type of equipment."

H. A. Scandrett, president of the Chicago, Milwaukee, St. Paul & Pacific Ry., says: "Our experience shows it is entirely practicable to substitute gas-electric cars for steam service on branch lines and on main lines where the traffic is comparatively light. The cost of operating these cars is considerably less than steam locomotives. The principal differentiating factors are smaller train and engine crews; lesser cost of fuel, lubricants and supplies; reduction in engine house and terminal expense; decrease in maintenance of fuel and water supply plants; lighter track maintenance, and elimination of claims for fires set out along the railroad.

"In the maintenance of gas-electric cars there is a possibility of reduction in expense even greater than in their operation. The cars will make greater mileage between shoppings and require less expense to keep them in condition.

"The lower cost of operating and maintaining gas-electric cars makes it possible to serve communities where the traffic density is insufficient to cover the expense of steam trains.

"Assuming that the manufacturers probably will design gas-electric cars of greater tractive effort, the future should see their adaptation to light way freight or peddler trains, switching service in small terminals, suburban service, inspection trains and light work-train service."

Chicago & North Western's Powerful New Passenger Engine, First of 35 Ordered Last Month.

Fuel Oil Consumption

Railroads which obtain their fuel oil supply in the central United States purchased 38,824,000 barrels of oil in 1928, a gain of 484,000 barrels, or 1.3 per cent, over the 1927 requirements. Railroads in the north central and south central areas showed increases of 295,000 barrels and 4,092,000 barrels, respectively, in their fuel oil purchases, while railroads in the Rocky Mountain area bought 903,000 barrels less than in the previous year.

What a Life He Must Lead!

Col. Edward A. Deeds, a director of the National City Bank in New York and an officer in a score of other leading institutions, is credited with being one of the foremost American business men to believe wholeheartedly in travel by plane.

In New York, Florida, Cuba, anywhere, Colonel Deeds takes air passage in one of his own planes, taking a secretary or two with him, and occasionally engineers to inspect property.

Colonel Deeds is perhaps best known for having introduced the electric starter to the automobile world, making it a success when people said, "Of course it won't work."

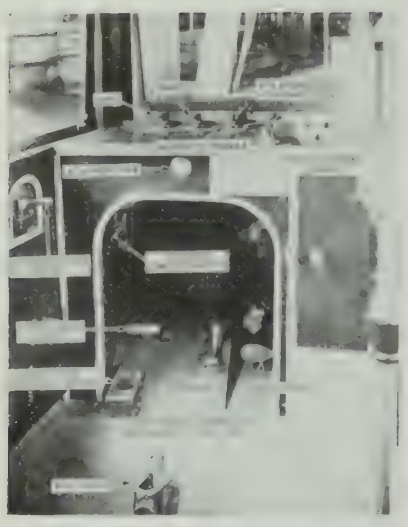
"I travel by plane because my time is valuable. There are a million opportunities in the United States, factories that can be picked up at bargains, and made marvelously productive in a hundred directions. No man can attend to a million opportunities, but with the flying machine you can look into and acquire four times as many as you could without a flying machine. So necessarily, I take an airplane.

"Man's only real possession is time. In it he works and amounts to something or nothing. Success depends on how well time is used. Modern machinery, adding to time's possibilities, doubles and trebles the useful working life of a man.

"With an automobile the doctor or business man can do three times as much as he could without it. With the airplane such a man can do three times as much as he could do with an automobile or the railroad train, again making time more productive."

Insured Against Airplanes

The latest form of insurance has been taken out by St. Alphonus Catholic Church, near the new airport at Fresno, Cal. Due to the danger of passing planes, the church has taken out airplane insurance.



Convenient Arrangement of the Controls in the New Trolley Car.

This Trolley Works Like An Automobile

By Earle W. Gage

Engineers agree that, with the coming of the latest type trolley cars in Albany, N. Y., this fall, an entirely new era of transportation opened, which gives to patrons increased safety, speed and comfort, and reduced operating expenses. Not only is the running time reduced as much as 20 per cent, but thanks to more efficient use of electric energy, these advantages accrue at a decreased cost for power.

The accumulated advantages of motor car engineering has been consolidated by the electrical engineers in the new cars. As the passenger enters he is reminded of the modern motor bus, whose chauffeur is seated in a comfortable leather upholstered chair, with the necessary control devices conveniently placed for efficient operation. Then there are the two rows of inviting seats, awaiting the 43 passengers, similar to the bus.

In the operation of trolley cars the motorman has increased speed by turning on the controller by hand; stopped by applying hand or air brake, and sounded a warning by foot bell, gong or air siren. In the new trolley he speeds up by "stepping on the gas," applies the brake with his foot, and gives warning of the approach of his car by "leaning on the horn," just as he would operate a motor car.

Transportation experts agree that the car makes possible speedier loading, more rapid acceleration and increased braking. Foot control gives the operator free use of both hands for opening and closing the entrance door, and for making change with passengers without loss of time in the one-man type car adapted to a majority of the runs. The car, in fact, presents an opportunity for electric transport corporations to adopt an efficient new system, which eliminates an additional operator, or conductor, on those runs which do not warrant two operators, and permits the one operator to handle capacity traffic with satisfaction.

The new car is of the front entrance type, center exit door. This center exit door is operated automatically by means of a treadle step, if the passenger is standing on the step at the time, when the car comes to a stop. The operator opens the front door manually. However, he has supervisory control over the center door at all times. The treadle step is within the car and there is no difficulty from passengers entering the car from the outside through this center door, as passengers can go in only one direction at a time. The rapid acceleration and braking of this car permits it to compete with auto traffic.

The four-wheel brake principle gives as efficient control in making quick stops as has been the experience with motor cars. The four sets of brakes, one more than on former trolley cars, are operated by hand. The additional brake, known as the track brake, is very responsive and clamps down upon the rails between the trucks, adding a safety feature of great value in streets of densely congested traffic. Then there are the regular air-operated brakes, the emergency dynamic braking system common to electric motors, and a hand brake.

The operator has a choice of any desired operating speed, so that the system insures the utmost flexibility of control. The car is equipped with special resonant gears and noise-deadeners on the wheels. In weight it is light, and its four electric motors, of 35 horsepower capacity each, are built for low-wheel service, making possible wide and easy entrance and exit doors.

Radios on French Trains

As a consequence of the success achieved in the first French attempt to receive radio broadcasts aboard a moving train, the French State Railway expects to equip three of its principal Paris-Havre express trains with radio sets, according to a report from the department of commerce.

A radio engineer in a special cabin will supervise the reception of the radio programs on these trains. Headpieces will be available for all passengers, for the present only in first and second class coaches, but eventually it is planned to extend this service to the third class. A charge will be made for the service varying between 10 and 20 francs (40 cents to 80 cents). The programs of Radio Paris the Eiffel Tower, Daventry (England) and other European stations may be heard by the ordinary traveler seeking to relieve the monotony of travel, while the quotations on the Paris Bourse will be available to business men.

For every one hundred dollars in revenue received by the railroads in 1928 they paid $6.37 to the government in taxes. This is the highest rate they ever paid. In 1911 they paid $3.58; in 1916, $4.37; in 1920, $4.40; in 1925, $5.68; in 1927, $6.13. So. far in 1929 railway taxes have been higher than in 1928.

Passengers Leave at the Center and Enter at the Front End. Operator Has Complete Control of Both Doors.

Before the Railroads Came West

A Missouri Viewpoint

By Edgar White

An old time Missourian, looking toward the sky, one day recently, saw a great airship sailing rapidly toward the West on its regular transcontinental flight with passengers, mail and express.

"This must be the last," he said, with something like reverence in his voice. "I've seen everything now."

Ox-wagon, steamboat, stage coach, railroad, motor car, airplane—in one man's life time all these methods of getting from place to place had passed in review before him.

Before the pilgrimage in quest of gold, nearly all the traveling by Americans was to a new place where a home could be founded. They took the hazard of the wilderness, and grouped themselves in small settlements for mutual protection. They were the pioneers. Where they found land that suited them they stopped, with the purpose of abiding there the remainder of their days. And in after years, seated before the blazing back-logs on the hearth, they told the tale to their children.

Travel, adventure, strange lands and stranger people! Mountains, canyons, waterfalls, caves, the great desert, Utah, Salt Lake, buffaloes by the thousands, a land where you could pick oranges from the trees, the ocean!

In "Roughing It" Mark Twain told a virile story that sent thousands of red-blooded men and boys to the West. Ben Holliday ought to have given him a free ride in his stage-coach for the splendid advertising the book gave his service.

It's a pity someone doesn't operate a stage line over the old Overland Trail now. Who would exchange its thrills for a soft ride in a Pullman?

Bloomington, a half-forgotten hamlet in Northern Missouri, was on the Overland Trail, and was a relay station for the stage coaches. W. D. Love, who lived there at the time, tells us:

"The four-horse coaches would arrive at Bloomington from St. Joseph and Hannibal on the Overland and from Glasgow on the Missouri River on the north state road along in the afternoon, sometimes after dark if the roads were bad. The stages carried the mail, and people from 20 miles around would gather in the little log postoffice hoping for a letter. Just a paper would make a man happy, for everything handed out by the postmaster in those early days was important. When a name was called the recipient came forward with his money, for Uncle Sam's postal rates were cash on delivery.

Looking West on the Old Overland Trail at Bloomington, Mo., Where the Stages Once Met, a Very Lively Place in Those Days.

"One evening a young farmer received a long-expected letter from Virginia, C. O. D. twenty-five cents! He didn't have the money, and didn't know where to get it, for in that day with a land flowing with milk and honey, money was scarce as trees in the desert. He could have paid ten dollars in eggs, bacon or fur, but Uncle Sam accepted no legal tender but the hard cash.

"The lad went around among his friends, but they needed what little money they had. Finally a man told him of some settler who needed rails for fencing and that he had the money to pay. So the boy struck out for the land of the Nabob on foot. It was 25 miles, but he got the job, worked two days and was paid 25 cents, walked back to Bloomington and got his letter!

"With all the coaches arriving about nightfall, and drivers and travelers getting out to stretch themselves the little town was a lively place. After a big dinner at the inns the wayfarers would sit around the fire place and swap experiences on the road.

"The fare from the river to Bloomington, 75 miles, was $5, a prodigious sum in those days. Only the well-to-do could afford to travel far, and when some came over from the Mississippi they were personages of distinction in the settlements—they had money!"

In later years came the campaign for a railroad along the Overland to St. Joseph. There was bitter opposition in some quarters, just as there would be today if you talked of shooting people through a tube as oil is

—International Newsreel.

Ohio River Packets at Cincinnati Docks. After the Chris Greene and the Betsy Ann Ran a 20-Mile Race, and the Winner Got Through in an Hour and Forty Minutes, or Some Equally Dizzy Time, River Men Are Talking About the "Returning Glory of the Packets."

pumped through pipe lines. One prophet took the stump to tell the world that the iron horse would be a constant temptation to make the slaves leave the old plantation, "where they were watched over with such tender care."

Another soothsayer declared he was "agin the railroad" because it held to reason that when it rained and the roadbed got muddy the iron rails would sink in the ground, throwing the train off the track and killing everybody on board. There ought to be a "law agin it," he said.

A prominent planter who had never ridden on a train, but who had seen pictures of engines in eastern papers said there would always be "danger of them teakettles blowing up and making teams run away." You never heard of a horse or mule doing anything like that. He believed in playing safe, he said.

In the light of today's demand for large appropriations to improve the western rivers to restore them as transportation utilities, a comment from the St. Joseph Gazette of long ago shows how the whirligig of time shifts the viewpoint of the people. The St. Joe and Kansas City papers are now pleading for river improvements to bring about lower freight rates. In its issue of November 6, 1846, the St. Joseph Gazette talked railroads as a means to get away from the high rates on steamboats.

"Our country is destined to suffer much, and is now suffering from the difficulty of navigation, and the extremely high rates the boats now charge. We suggest the propriety of a railroad from St. Joseph to some point on the Mississippi—St. Louis, Hannibal or Quincy—so as to place us nearer to the eastern cities, and make our road thither a direct one, and it would be of immense benefit to the intermediate territory."

On February 13, 1859, the prayer of 1846 was answered. The Hannibal & St. Joseph Railway was built. Much to the astonishment of the doubters, the rails didn't sink into the mud. The story was told in Transportation months ago by another writer.

"Yeah," said the old Missourian, "I've seen 'em all from the ox wagon down, and there's never been a time when the world and them that's on it wasn't going somewhere. Rolling stones! Rainbow chasers! No wonder they can't make automobiles fast enough for 'em to gad about in! Look at them now, will you—up in the air!"

The Smoker Fire Menace

The United States forest service now classes the airplane smoker, as well as the automobile smoker, as a "fire menace." Tests from a forest patrol plane over Spokane, Wash., airport, demonstrated convincingly that a large percentage of cigar and cigarette butts dropped from altitudes at least up to 1000 feet are still burning after they reach the ground. Lighted cigars and plain-tipped cigarettes were dropped from 500 to 1000 feet altitudes. Four of six cigarettes, and all of five cigars recovered were burning when they were picked up.

A Self-Flying Plane

An automatic airplane control, which will keep the plane flying on a straight course, or in circles, without attention from the pilot, has been patented in Germany, according to a report from the assistant trade commissioner at Berlin, A. Douglas Cook, made public by the department of commerce.

The new control, during extended flights, is designed to relieve the strain on the pilot's nerves and to enable him to give full attention to navigation problems for long periods, it was stated. In case of emergency, however, the pilot may immediately resume control, without shutting off the power motivating the automatic arrangement, the report adds.

No man can be cheated out of an honorable career in life unless he cheats himself. Believe in yourself and your capabilities and you will not be cheated.—*Emerson.*

This Dispatcher Doesn't Worry

The Power Dispatcher Watches 19 Automatic Substations, Over Which He Can Have Control at Will. Each Panel Represents a Substation.

Automatic Street Car System

By Hudson Biery

FOR ALL ordinary routine fair weather operation, the power dispatcher of the Cincinnati Street Railway could be deaf, dumb, and blind, and street cars would keep on running just the same, night and day. Seated at a small desk in the center of a good sized room he faces a semi-circular switchboard of nineteen panels, each panel representing one of the substations over which he has supervisory control. These substations transform and convert 13,200 volt alternating current into 600 volts direct current of 43,000 horsepower for the system's 275 miles of electric railway. Each of these power distribution substations is fully automatic, however, and under normal conditions can function at the proper time and in the right manner with no attendant at the station or even at the supervisory office, cutting in automatically when a load comes on the line, and cutting out again when power is no longer needed.

The supervisory control which the power dispatcher has over the system is rather in the nature of an afterthought, or an additional safeguard to prevent any possible mechanical failures to interfere with the operation of the cars. The present place of the street car in our big cities and its place in the future, aside from its economic use of street space in handling large numbers of people, rests largely upon its dependable and efficient service. It is, therefore, vital that power supply be ample and uninterrupted. While the automatic station may be as reliable as human ingenuity and modern science can make it, yet the management of the railway takes no chances, and over the entire automatic system has been thrown a supervisory control system. With this arrangement the power dispatcher can bring about almost any special condition desired, and he is able to cope with practically any emergency situation.

The automatic power station, although a development of the last few years, is being rapidly adopted in various cities, but Cincinnati's new system just completed, is said to have the largest number of supervisory-controlled stations operating completely automatically of any metropolitan power system in the world. Under the old method, each substation in a power system had to have an attendant continuously. This meant that the operator either lived at the station or worked an eight or twelve hour shift, the station requiring three or two operators as the case might be. The modern automatic station has no attendant, and usually is kept in repair by a traveling maintenance staff little larger, if any, than was required to care for the old manually operated station.

In the new Cincinnati system, nineteen stations are now operated with twelve fewer men than formerly were necessary to operate eleven stations, the present staff being composed entirely of power dispatchers, supervisory officials, and maintenance men. The power dispatchers are on duty 24 hours a day, working in three eight hour shifts. If for any reason the supervisory control for any one, any group of, or even all the stations should fail to function, then that station, group of stations, or all the stations operate automatically.

The dispatcher is able at will to start, stop or lock out of service any rotary, he can open, close or lock out of service any feeder breaker; he can tell whether there is power on the incoming lines, he even knows whether the door to the station is locked or unlocked. He knows the voltage and load at all stations through meters on his control board. Nearly 840 flashing, red, green and white lights on 40 representing a station, keep positive indications before him at all times of the condition or position of the most important apparatus at every station, and he can exercise control over most of them. He also

(Turn to Page 20)

I am indebted to Harley L. Swift, general manager, and to J. A. Noeppel, engineer of the Cincinnati Street Railway, for the technical data included in this article.

EDISON and his STORAGE BATTERY

Fifth of a Series of Historical Sketches Presenting the More Significant of Mr. Edison's Series of Experiments from 1898 to 1908 in His Search for a Dependable, Economical Storage Battery

(Reprints of Previous Issues Will be Furnished on Request)

Edison Insures Safe Retention of Active Materials

AMONG the qualities Mr. Edison had determined upon as necessary for a good storage battery was sustained power capacity. In order to obtain this quality he knew that two basic problems had to be solved. He knew he must discover:

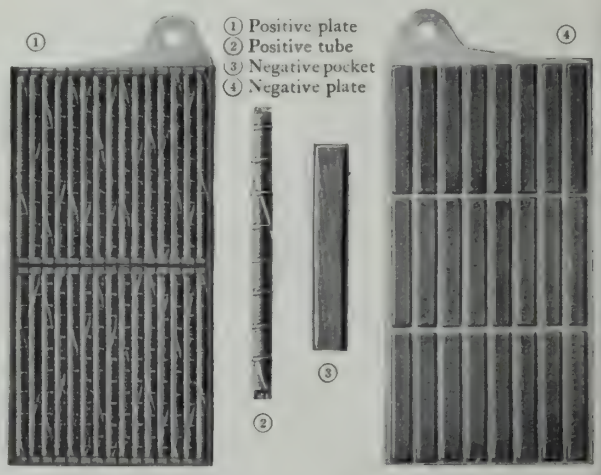
1. Active materials having a permanently reversible electro-chemical reaction.
2. A means of retaining these active materials securely and permanently in the battery plates so that they could not be dislodged by the vibration, shock, gassing, expansion and contraction that may take place in service.

Curiously enough, when he finally found that nickel and iron met his requirements for active materials, their properties at once suggested to him the method he later worked out for retaining them in the plates.

This was because nickel and iron, in chemical properties, are next-door neighbors of steel; and because the physical properties of steel permitted the construction of perforated tubes and pockets in which the active materials could be retained with permanent security.

In the design of these retaining tubes and pockets, some interesting problems had to be solved. They must expand and contract as the active materials expand and contract. Their perforation must insure rapid electro-chemical action. Yet they must not let the active materials escape.

The method of construction finally developed by Mr. Edison involves such manufacturing precision that a visitor to the factory once remarked that the Edison Battery is "as rugged as a battleship and built like a watch." Today these containing tubes and pockets represent only one constructional detail of many that are apt to suggest such a comparison. Yet they remain one of the features that has proved of great basic importance in bringing to practical reality Mr. Edison's original idea that a good storage battery should be capable of maintaining a definite capacity for a long service life.



The plates of Edison Batteries are steel grids in which the perforated tubes and pockets, developed by Mr. Edison to retain the active materials, have been secured by hydraulic pressure of many tons.

Edison *Steel Alkaline* Batteries give Economy an
Control, Gas-Electric Rail Car, Signallin

EDISON STORAGE BATTERY COMPANY, ORANGE

"That's a GOOD battery for your exhibit but we could have loaned you an OLDER one."

SUCH were the comments of visitors on seeing the Edison Battery that delivers more than 100 per cent of rated capacity after seventeen years of continuous car lighting service.

An important Western railroad had graciously loaned us the battery for use as an exhibit at the twentieth annual convention of the Association of Railway Electrical Engineers held in Chicago, October 22 to 25, 1929.

It had been sent to our Chicago service station for overhauling where, after renewal of three containers—the only repairs found necessary—electrical tests showed that it still exceeds 100 per cent of its rated capacity. It has since been returned to duty.

One of the most interesting results of this exhibit was the suggestion offered by visiting railroad men that they could have loaned still older Edison Batteries.

One was a representative of a road that began purchasing Edison Car Lighting Batteries in large quantities in 1911, of which the vast majority remain in service.

Another spoke of an Edison Battery received in 1910 with a "Beach" storage battery car. When the car was retired, the cells were re-allocated for use in industrial trucks where they served several years, following which the same cells were made up into car lighting batteries where many remain in service today at the age of nineteen years.

The gradual accumulation of such evidence of Edison economy and dependability is undoubtedly one of the reasons why 1929 is the largest year in our history.

Dependability in Car Lighting, Multiple Unit Motive Power and Other Railway Services.

TRADE MARK
Thomas A. Edison

J. , , , BRANCHES IN PRINCIPAL CITIES

Dispatcher Doesn't Worry

(Continued from Page 17)

has a private telephone line to all stations for communication with traveling maintenance men. If a single unit intermediate station is not operating, or a double unit station such as Lincoln Park, Walnut or Avondale has one unit operating, then under normal or automatic operation, a substation would function in about this manner. When an abnormal or increased number of cars begins to use power on that section, or one of the sections controlled by the station, this causes the trolley voltage to drop a certain predetermined point at which schedules can be maintained. This voltage drop causes a certain time relay to act. If the drop in voltage should continue for a certain number of minutes the relay completes its cycle and completes circuits operating other relays or magnets. Each of these relays then calls into action and operates a device, which in a non-automatic station would be thrown by hand, until another station, or a second rotary is thrown on the line, thereby restoring full voltage to the trolley. All of this is accomplished in a slightly longer period than you have taken to read this paragraph.

After this abnormal condition has been removed, or the load on the station has returned to normal, and there is no further need of the extra power, the station or additional unit, as the case may be, is shut down automatically in the same manner, but in the reverse from that in which the station or unit was thrown in. The power dispatcher receives an indication of each operation so that he knows at all times exactly what is going on in the station. Should there be a condition developing on the system of such a nature that in the opinion of the dispatcher it might be important for the station or unit not to operate, he can prevent it from operating before the condition occurs or while it is occurring.

The stations are so arranged and so connected, that any station can go out of service and its load be carried by the adjacent stations so that car service will not be interrupted or noticeably affected. Through this same hook-up, it is possible for the dispatcher in time of need to borrow power from one substation to help out another. Under the new arrangement, a complete tie-up because of power failure is very remote if not impossible.

The 13,200 volt current is brought to the substations over heavy feeder lines of the local power company, underground.

A transformer is a part of each substation which changes the alternating current from 13,200 volts to 445 volts. The process of reducing this current in the coils of this piece of equipment creates a large amount of heat. Oil circulating through the tubes around the tank of the transformer cools and insulates it. It is further cooled by air through the ventilator grill upon which the transformer rests.

After the current has been "stepped down" in this transformer to 445 volts alternating current, it must be changed to direct current for the operation of the cars at 600 volts. This work is done by the rotary converter. The 445 volt alternating current passes from the transformer through the switches on the panel adjacent to the transformer, to the rings of the converter.

This converter is a combination of an alternating current motor and a direct current generator using the same windings. The motor part is operated by the 445 volts alternating current and runs the generator side which is direct current and generates 600 volts. The direct current is now made and is carried to the street cars on the trolley wires.

For three years the Cincinnati Street Railway has been engaged in a complete rehabilitation of its property, including new tracks, new shops, and new cars, but when the company decided to close down its own large generating plant, to purchase all its power from the central station of the local power company, and to establish the new automatic supervisory controlled system, it embarked on one of the most ambitious power distribution revamping programs ever undertaken by a street railway. Engineers of the principal power equipment manufacturers estimated that an installation of this scope would require from three to five years for completion. Realizing the necessity for more adequate power supply, and the advantage to be gained by the automatic supervisory controlled system, the company undertook to cut this time down to 18 months, less than half the time estimated. Contracts were placed September 1, 1927, and the first equipment was delivered February 1, 1928. All 19 of the automatic stations were in operation December 17, 1928, within two months less time than the goal set.

Under the new plan the power substations are more widely distributed throughout the city, providing much better power on many lines. Power losses in feeders are reduced because the distances between feeding points are decreased. The large number of small stations with automatic control increases the promptness of restoring service after faults have occurred. Greater protection of substation equipment is possible. Perhaps the most important advantage in having a large number of small substations is that when any one substation is down, the power supply is not seriously affected. If a substation is out of service, its load is transferred to the nearest stations, and street cars will continue to operate probably at normal, but in any event at only slightly reduced speed. In a system with only a few large substations, when one goes out of commission cars usually are delayed, if not actually tied up, over a large section of the city.

The system required 12 new buildings and the remodeling of seven of the old substations. Many of the stations adjoin homes, and this resulted in an excellent demonstration of the manner in which a public utility may coordinate its expansion program with city planning and beautification. While the interiors of the buildings are all alike, the exteriors are all different and are made to harmonize as far as possible with the neighborhood, or fit into plans of the city planning commission for that territory. The buildings have all been made particularly attractive.

The increased cost of making the new stations of pleasing appearance over and above the cost of making them severely plain, as such buildings often are made, was relatively small. Walter A. Draper, president of the company, said, "We have tried to make our buildings beautiful rather than plain. These stations usually are in residence parts of the city. In every case we have tried to make them equal to, if not better than, other buildings of the locality. While Cincinnati already is a beautiful city, we feel that we must keep pace with its continued development, and build for the future, along with the present. For this reason we believe the city as a whole will appreciate the work we have been doing, particularly when it is realized that we have been able to plan these good looking buildings with well planted grounds at very little increased cost. It is also a step toward our goal of providing not merely an adequate but an attractive service."

Main Lounge of the Handsome New Home of the Pacific Electric Employees' Club at 627 South Los Angeles Street, Los Angeles.

These P. E. Men Should Be Happy

New Clubhouse Cost $462,000

By James W. Harper

WITH A CLEAR understanding of the danger in superlatives and comparisons, it is, nevertheless, perfectly safe to say that the new home of the Pacific Electric Employees' Club at 627 South Los Angeles street, Los Angeles, dedicated in September, is far ahead of anything of the kind in the entire country, and possibly in the world, a part of which we have not yet seen.

One thing appeals strongly to a visitor in this very unusual clubhouse: no employe need, or could possibly feel neglected or alone if he is disposed to take advantage of the comforts and luxuries provided here by the company; and, still more important, the employe who wishes to improve his education and fit himself for more important duties has every facility before him without spending a dollar of his income. So complete are the facilities offered in this respect that no visitor can escape the conclusion that an employe who ignores such opportunities doesn't deserve to have a job.

There are about all the conveniences in this club to be found in any of the social clubs, even of the richest except, of course, the item or two which no railroad man ought to have; but the feature certain to hold the attention of thoughtful persons is the company's educational department, operated under the club's auspices. Earl W. Hill, a full-fledged professor in his own right, is director of this department. There are twelve study courses, free to employes: mathematics, traffic management, psychology, personal leadership, home economics, public speaking, Spanish, business English, dramatic art, shorthand, typewriting and engineering electricity. Three classrooms, completely fitted, are furnished for carrying on study classes.

Comforts and Conveniences Everywhere.

Sports and athletics are sponsored and encouraged. Among these carried on are baseball team, bowling, tennis, shooting and fishing. A picture show and dance are given once a week free, the music being provided by the Employes' Club Orchestra. A ladies' auxiliary meets weekly, and departmental social groups meet frequently in carrying out social activities. The club and its facilities are financed by the Pacific Electric Ry., which shares also in the cost of operation, membership revenue being insufficient to meet obligations. The club has 4850 members who pay only 35 cents a month for all the privileges, and the membership includes the whole family.

The new club property adjoins the Pacific Electric building which faces Main street. It is a class A four-story concrete structure which, with the land and furnishings, cost $462,000. The building contains a motion picture theater seating 712 persons; ballroom, lounging room, library, three classrooms, lunchroom, athletic headquarters, billiard parlor and oth-

More Than 300 Employes Daily Gather Here for Their Noon-day Luncheon.

er adjuncts. The furnishings throughout rank with those of the finest commercial clubs in Southern California.

Yes, Virginia, There Really is a Mr. Foster

"Ask Mr. Foster," which admonition one sees in hotel lobbies and such places, is the sole slogan, corporate title, and appellation of the organization it advertises. There really is a Mr. Foster, the New Yorker says. Few meet him personally, of course, and if his business is somewhat cryptic to some, it probably amuses him, for he has a gentle humor.

In 1886, Ward Grenelle Foster (for that is his full name) happened to be 25, and in Florida with no occupation. He had left Albion, N. Y., his birthplace, with a construction gang to build the Ponce de Leon Hotel at St. Augustine, and the construction was finished. After casting about for a while, he finally opened a small bookstore across the street from the hotel. His customers were from all over, and through talking to them he soon accumulated a fund of miscellaneous information of train connections, hotels, and so forth. He got to know so much about the subject that the clerks from the Ponce de Leon would send people across to his shop to "ask Mr. Foster."

Mr. Foster used to chuckle about this. Then suddenly one day he concluded that there was more money in answering questions than in selling books. His big idea was to place the charge upon railroads, steamship companies, hotels, and others who profited from the facts he related. Once started, he expanded rapidly. Department stores and banks, as well as hotels, paid him for setting up bureaus, as they attracted crowds.

Mr. Foster still keeps contact with his 70 branches, supervises two schools in which his employes are taught, keeps track of ten road men who spend all their time getting travel facts, and manages a string of 18 Mr. Foster's Remembrance Shops, an outgrowth of his original book business. He spends an average of 240 days a year on the road himself, and divides the rest of his time between California and New York, although his legal residence is Miami. He is a gentle, quiet, whitebearded gentleman of 68 who doesn't like motor cars, and subsists mainly on a diet of raw vegetables, whole wheat, and a great deal of water. Hanging on the wall of his office in West Forty-second Street is the motto: "Work is the Best Fun." Although he has traveled miles enough to have circled the globe scores of times, he has never been abroad. He talks occasionally about going, but his associates only smile unbelievingly.

Low Cost Transportation

The ability to have depends upon production, and the opportunity for production depends upon the exercise of buying power. This is the cycle of our civilization and prosperity, neither of which could exist were it not for the safe, dependable, rapid and low cost transportation provided by the railroads.

—A. G. Pack, chief inspector, Bureau of Locomotive Inspection, Interstate Commerce Commission.

A Well Stocked Library and Reading Room Is Eagerly Patronized.

How Locomotives And Gun Iron Are Related

The Alger Foundry, Viewed From South Boston Bridge.

By Charles Dillon

EXCEPT IN the mechanical departments, it is doubtful whether very many railroad men ever have given a thought to the interesting and important relationship existing between locomotives and guns. This is perfectly excusable. The two seem far apart. Then, too, the average man does not, ordinarily, think much about the source of his comforts and conveniences. Bread is bread and meat is meat; the science, the labor that brought them forth are not his concern. Let the farmer do the work. That's his job in life.

An astonishingly large number of men believe that wonderfully interesting stories might be written about their own businesses or industries, but fail to see the same possibilities in another's job or product. Consider, for instance, the first question before the house: locomotives and guns. All kinds of interesting possibilities are presented. To begin with, it is altogether probable that the long runs of locomotives with which we are all more or less familiar nowdays would be impossible, motive power costs and maintenance would be much higher, and the net return over which investors worry themselves ill year after year, would be a great deal lower had not a scientific gentleman named Cyrus Alger, far back in the last century, delved deep into the mysteries of metallurgy in the making of large caliber guns.

As far back as you may care to search in history—and you may begin at the siege of Belgrade in 1073—you will find men trying to make guns that would withstand great strain and wear. Nothing very authentic is known about those Belgrade cannon, but certainly when the things found a definite place in history, say in France in 1338, they were made of wood, well bound with strips of iron, and not very trustworthy iron at that. Iron bars, bound with hoops, were next used, and finally, in the Fifteenth Century, cast-iron was the material. Bronze was tried, forged steel, and so on down the well-known corridors of time, men were seeking a metal that wouldn't burst, that wouldn't wear out before it had done its full duty, ordnance that governments could afford to buy.

Cyrus Alger

It is interesting to remember, as a coincidence, that in the beginning-days of railroading the tracks were made of wood, then flat strips or straps of iron on the wood, then rails of iron, and finally steel! No invention, it seems, ever was perfect at first. The big guns that roared in the World War were the products of innumerable improvements. Locomotives, we all know, are vast and powerful assemblages of many things, some of them subjected to such terrific wear and heat that only the hardest metal will bear the strain. And this is why locomotives and guns are related.

Cyrus Alger, whose name was mentioned a moment ago, was born in 1781 at Bridgewater, Mass., the son of a foundryman. There isn't available very much material about the boy's early years except that, quite naturally, he took up his father's trade or business, and improved upon it by determining to become a leader in metallurgy. We know this because in 1809 he had begun to specialize in foundry development for ordnance work. He established Alger's Foundry the next year and still later, as the faithful chronicles of Massachusetts show, in 1827 he incorporated as the South Boston Iron Co., and became the president.

Cyrus Alger must have been a

Plant of the South Boston Iron Co.

hustler in his day. Throughout the interesting record of his activities no slackening, no letting down, no resting from constant research, experimentation, endless effort is disclosed. He kept right at it. Soon he began to devise valuable inventions of one kind or another important in his trade, among them an improved method of casting chilled rolls, giving increased hardness to the part subjected to wear. Still further developments produced metal having three times the strength of ordinary iron, something of tremendous value in the manufacturing of cannon and heavy artillery. A method of purifying iron by the air furnace gave to the Alger foundry a very distinct advantage in making iron guns, especially those of large caliber. Indeed it was this process, used in making heavy guns, which produced the metallurgical term, now familiar to many who nevertheless know nothing of its meaning, "Gun Iron." This was in 1828.

Improvement and progress were constant. In this foundry of the South Boston Iron Co., the first rifled gun to be cast in the United States was turned out in 1834 of air furnace gun iron. Here also was produced the first bronze gun for the United States navy for heavy artillery, and also for the state of Massachusetts. The Columbiad, then much the largest gun cast, was turned over to the government by this company in 1842. This was a 12-inch gun with a range of more than two miles, a whale of a distance for those times; and a report to the war department declared the company's cannon had given most favorable results and that the quality of the metal was unsurpassed. The company must indeed have proved successful because it made the first of the large cannon for the government, the ten, eleven and twelve-inch guns, cast under Cyrus Alger's direction, he selecting the iron and using his own process. It is related that one of these 11-inch guns carrying a solid shot of 170 pounds, or a shell of 135 pounds, was first fired 655 times with the former projectile and 1306 times with the latter, an enormous endurance of 1959 rounds, before it failed, far exceeding any other record of the ordnance department from this or any other country.

Mr. Alger had a son, Francis, whose association with the company was of great importance, a young man scientifically inclined. He was elected a member of the American Academy of Arts and Sciences, received an honorary degree from Harvard University, and often was called to Washington in the interests of his many inventions and of his company, which, it is easy to see, was a great and important influence in the protective growth of the nation.

Cyrus Alger made many improvements in the metallurgical science valuable to the government and destined to become the basis of the great advance in metallurgy which continued throughout the latter part of the century. Admiral Dahlgren once said of him, "He possessed that rare quality, sagacity, which constitutes the highest attribute of the intellectual man, and enabled him to arrive at results which others sought by disciplined study, and often in vain." When Mr. Alger died in 1856, William H. Howard, who had long worked for him, and under his direction had learned the business, became president. It is recorded of the two that Alger, with Howard helping him, made the molds and, when Saturday came, prepared and ran the furnace, the blast of which was driven by horse power, and poured the metal completing the week's work, a happy relationship maintained to the end of Cyrus Alger's life.

When the Civil War came along in 1861 the South Boston Iron Co. found it necessary to expand. A new foundry was built to give the needed capacity with three additional 45-ton air furnaces and a new machine shop. The company's growth

Casting Guns at the Alger Foundry.

is shown in the report of an official of that day, W. P. Hunt, which says that in 1867 the firm shipped three 1000-ton cargoes within six months to Chili, that there were large shipments also to Peru and the Argentine, and that the casting of large ordnance continued.

The company's second president, Mr. Howard, died in 1875 and was succeeded temporarily in the duties by Edward Reed of Yarmouth, Mass., a director and treasurer. When ill health compelled Mr. Reed to resign in 1876 W. P. Hunt was elected president.

The Present Modern Plant of the Hunt-Spiller Mfg. Corpn.

New names appear in the history at this point. Job Goostray, an Englishman, began in the company's service in 1880, and he, it is said, made the last of the big guns under the direction of James Wood, foreman of the ordnance casting department. Mr. Goostray is still actively employed with the company, now in a consulting capacity. Joseph McCreedy joined the forces about the same time as Goostray, specializing in air furnace practice, and like the former, is retained as a consultant.

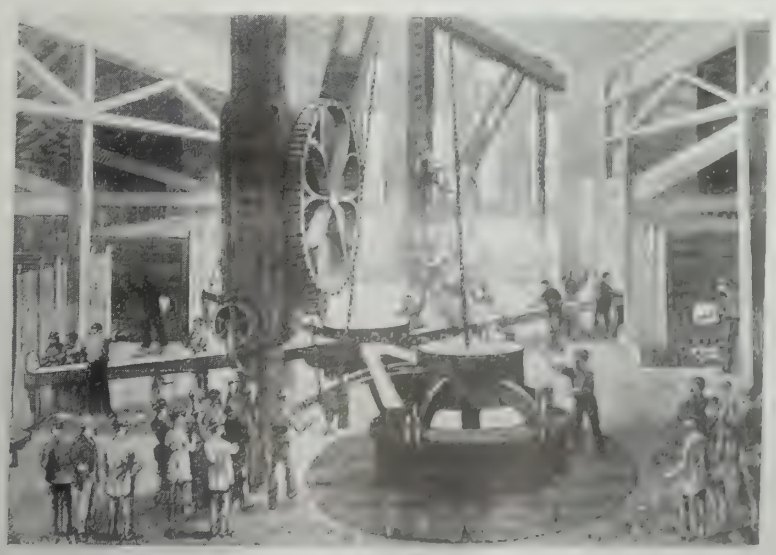
The company was reorganized in 1884 as the South Boston Iron Works, with Mr. Hunt as president, the manufacturing of ordnance and its supplies being continued and enlarged to include the making of stationary engines, large and small cast gears and other articles, notably link blocks, guides and wheel centers for locomotives.

The Hunt-Spiller Co. was incorporated in 1892, its name being derived from that of its president and Harry Spiller, an associate. This organization became the Hunt-Spiller Manufacturing Corpn. in 1904 with W. B. Leach as treasurer and general manager. Mr. Leach formerly had been master mechanic for the Boston & Albany at Springfield, Mass., in which capacity he had become so convinced of the value of gun iron in certain locomotive parts that he directed his attention largely to popularizing the metal on railroads generally. He continued this effort until Mr. Hunt died in 1911, when he succeeded him as president, to which post were added the duties of general manager. Mr. Leach died in March, 1928. To his organization and the high state of perfection to which their product had been brought, is due the fact that this metal was specified and used by the government during its control of the railroads, and also the additional fact that it received the approval of master mechanics' associations in their yearly meetings.

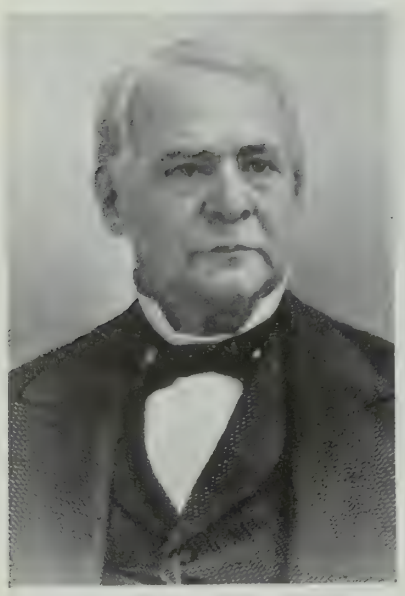
A Twelve-Inch Rifle Casting of the 40s. This Big Gun Had a Range of About Two Miles, Something Sensational in Those Days.

John G. Platt became president of the company when Mr. Leach died. Mr. Platt was engaged for many years in railroad operation. He entered the service of Hunt-Spiller Mfg. Corpn. in May, 1907, as mechanical representative, was appointed sales manager in June, 1912, and elected vice president in March, 1917, which position he held until his election as president.

The company in recent years under the leadership of Mr. Leach and Mr. Platt has laid particular stress upon research both from the standpoint of the manufacture of the product, and its introduction and maintenance upon the railroad. A



Casting Cannon at the South Boston Iron Works.



William H. Howard

William P. Hunt

W. B. Leach

strong foundry, engineering, and metallurgical department with modern foundry equipment and metallurgical laboratories has further developed the product founded by a famous metallurgist of the early days.

Working Conditions 50 Years Ago

There is an interesting sidelight in the advertisement of the elevated roads of New York, on which the traffic was made to bear what it had to, by charging ten cents fare between 5:30 and 7:30 a. m., and ten cents between 5:00 and 7:00 p. m. Between times, you could travel for a nickel. Think of the working conditions of 50 years ago which made the morning rush hour of city transit start at 5:30 a. m. and end as early as 7:30 a. m. Those are the hours today at which you could be sure to find a seat. The evening rush hour which then extended to 7:00 p. m. is today finished by 6:00 p. m. The shorter working day which this so vividly illustrates, not only marks the conquest of extreme drudgery in daily occupation but it is beginning to be intelligently understood by industry itself, that reasonably balanced working hours and reasonable leisure with adequate wage scales, are the very heart of universal use and buying which maintains industries themselves. In the working hours of that early day the automobile would have lacked a market, not alone because wage scales had no margin for the purchase of such a modern-day convenience, but because of a working day which had no time to use or enjoy such a facility, and a working day that left little strength or energy except for bed or dissipation. As early as 1860, we had gasoline, but it was worthless, for invention had as yet found no way to use it.—*Julius H. Barnes.*

A Trans-Persian Railway

In an endeavor to encourage the economic development of the country, the chief obstacle to which was the extraordinary lack of modern means of communication, the Persian government has had under consideration since 1927 a plan for a Trans-Persian Railway, extending from the Persian Gulf to the Caspian Sea via Hamadan and Teheran. The line is now under construction. When completed it will be about 990 miles in length, will be of 4 feet 8½ inch gauge and steam operated. In 1927 and the first quarter of 1928 the "American Railway Administration" of the Persian government surveyed and started the construction of 175 miles of the line. However, the construction program was slightly delayed through a change in plans. It had been the intention of the government itself to complete the proposed railway, but early in 1928 it was decided to award the survey of the remaining 815 meters to contractors. Accordingly, on April 26, 1928, it was awarded to a group composed of American, German, British and French firms. The work, for which plans have been approved, calls for an expenditure of about $12,123,925, of which approximately $7,000,000 has been advanced to the syndicate in cash. The contracts are on a cost plus 10 per cent basis.

J. G. Platt

"A nation doesn't fall from its growth of wealth and power."—*Herbert Hoover.*

"Some people never seem to understand how ideas, like all living things, grow and develop during sleep."—*Aristide Briand.*

Benevolent people are very apt to be onesided and fussy, and not of the sweetest temper if others will not be good and happy in their way.—*Helps.*

Editorial Comment

Christmas

So we have come to another Christmas. Rich man, poor man, beggar-man, thief, young and old, turn as they may not have had time to do in the year that is ending, to gentler thoughts. As completely as possible, according to our circumstances and dispositions, we face about from the hurry and strife of business to contemplate for a while the goodness of those who have made living a little pleasanter for us. Just as earnestly, too, we try to overlook the regrettable defectuosities of those with whom, in the competition of life, we have had to contend; with the genuine hope that the cheerful Spirit of Christmas may clean the slate, and start the New Year right.

We like to think, with Phillips Brooks, the Sage of Boston, that "the earth has grown old with its burden of care, but at Christmas it always is young," because Christmas is a time, more than any other, to forget old animosities, old contentions, to start again, fresh and good-tempered, to revive, and try in the future to preserve neglected friendships, remembrances, and kindly feelings. It is pleasant to know, too, as we do in this big land, that travelers, far from home and fireside, will be the special care of the railroads in celebrating with merriment and the traditional liberality of the season the world's one common holiday.

The Funny South

It was decided nearly three years ago when this magazine was beginning its career that, come what might, we should try every month to have something in its columns to give its readers a smile. That great and genial philosopher, Charles Kingsley, once declared no man would be turned aside from his mission on earth through listening to a good funny story. With this in mind we offer this one from the sacred precincts of the United States senate. Senator McKellan of Tennessee is the author.

"As everyone knows," said this southern gentleman one day last month, "the Interstate Commerce Commission, as it is at present organized, is exceedingly generous to the railroads in fixing rates."

When order had been restored in the galleries some thoughtful solon moved to adjourn.

The Worm Is Turning

The United States Supreme Court has given railroads and public utilities generally much encouragement in the last year. The O'Fallon decision in the matter of valuations, so important that no one up to the present has formed very definite conclusions about it; the New York Subways fare case which undoubtedly would have had a more helpful ending if counsel for the companies had availed itself of its rights under state laws before going to the highest court; the decision in the Los Angeles Union Station case, holding that the Interstate Commerce Commission has no authority to compel a railroad to build a union station and at the end of November, the upholding of the seven-cent street car fare in Los Angeles, with the additionally comforting declaration that a five-cent fare, in view of the company's showing, would be, as it long had been, confiscation of property. Another very important decision although not in the same class, was the court's assertion that a railroad track is in itself a danger signal warning motorists to be watchful.

An attorney of very high standing, knowing as much about the United States Constitution as most men ever do know in this busy world, a man representing large industrial interests, admitted not long ago that the idea of taking at least three important property cases to the Supreme Court where he won them had come to him while reading editorials. These editorials, he said, were written by men who knew public opinion, the things that are said in clubs, hotels, street cars, on the streets. "Big interests," said this lawyer, "sometimes need moral support from the public. You never know when you are starting something when you write an editorial."

This department never has been able to understand why public utilities such as telephone, water, gas, electric light corporations are entitled to any more protection against confiscation than are the steam and electric railways. No man familiar with the Constitution and the decisions of courts, especially those of the court of last resort, believes for a minute that the last twelve words of the Fifth Amendment were meant to apply to one kind of company or individual and not to another: *Nor shall private property be taken for public use without just compensation.* One wonders why railroads have been so slow to seek the protection of these words.

The idea seems to be taking hold. And why shouldn't it find favor in the minds of counsel? In a list of 23 decisions, many of them by the United States Supreme Court, there is only one instance of a seven per cent return, three of a seven and one-half, and 19 of an eight per cent return. True, these cases were not railroad matters, but there is a fairly good gambler's chance that the court might find certain rates to be confiscatory. One thing is pretty certain: the railroads will get a square deal if they go in with clean hands.

Twenty-three railroads filed suit in the federal court at San Francisco November 27 attacking the Interstate Commerce Commission's order to reduce rates on refrigerator car shipments. Among the number are the Southern Pacific, Western Pacific, Santa Fe, and the Union Pacific. The case will be watched with keen interest. In the meantime, if congress can be induced to repeal the obnoxious Recapture Clause and the Hoch-Smith Resolution some reason may be found for railroading.

Is One Motor Enough?

Only 89 airplane pilots and passengers have been fatally injured since the first part of 1918 in postoffice mail, contract mail, and other airways operations of which the department of commerce has records, according to statistics in the annual report of the director of aeronautics. During this time nearly 50,000,000 miles have been flown. The records cover

the 11 years since 1917 and the first six months of 1929.

The figures show that 15,738,571 miles were flown by the postoffice mail from 1918 to 1927 when operations were turned over to private contractors. There were 32 pilots and nine passengers fatally injured during this time. Contract mail has been flown over 20,407,358 miles since it was turned over to private operators, and the records show that 32 people have been fatally injured, including 21 pilots and 11 passengers. Data as recorded by the department for other airway operations covers only the period from 1926 through 1928. During these years 3,052,910 miles were flown and 16 fatalities occurred. There have existed passenger lines from time to time between various points in the United States, from 1911 to 1925, but there is no official record of their operations.

Statistics showed also that for the contract mail in 1929 there has been only one pilot fatality for every 1,063,296 miles flown. Figures have not yet been compiled for other airway operations for that period, but the table shows there was only one pilot fatality for each 1,413,577 miles flown. Records have not been completed for airway operations other than mail for the period from the first part of 1918 through 1927.

Every time we have been in the air in the trimotor, 14-passenger planes we have been told that one motor would carry the ship. In the interest of public safety we should like to have this proved a bit more conclusively than it has been to the present. The F-32, a four-motor giant crashed at Roosevelt Field Nov. 27 with three motors running because it could not gain altitude. This was the largest air ship built in this country. It carried 32 passengers, but only two were in it when it crashed—if this is the right word to use. No one has told us yet why three motors could not provide enough power to get the ship into the air.

Why Not Advertise?

American housewives learned much during the World War about cooking substitutes for meat. The live stock industry has never recovered the customers it lost then, and it never will until it learns that paid educational advertising is the surest way to sell a product. It can't be done with dreary lectures or free publicity which no one prints, and these with here and there a billboard advertisement—wasted money—were practically the only means employed by the American Meat Packers' Institute to stop the decline.

The per capita consumption of meat and lard continues to decrease year by year; it was 153.5 lbs in 1927. In 1928 it was one pound less. In 1924 it was 165.1 lbs. This decline of 12 or 13 lbs. per capita represents a good many steers, sheep and hogs. It means a big decline in live stock producers' revenue. But all they have ever done toward trying to improve their situation was to demand lower freight rates. The national appetite can never be regulated in this way.

Football and Transportation

It is no exaggeration to say that this thing we call Civilization depends almost wholly on transportation for its life. The serious and the gay, commerce and sports, all need steam railroad service. A recent report shows that even flaming youth prefers the comfort and safety of railroad coaches over the uncertainties and the traffic jams of public highways. The New Haven System has benefited greatly by the football exodus to the Yale bowl every Saturday. In the football season that line runs 28 or 30 special trains to New Haven on the Saturday of the big game. The Yale-Princeton game, which drew about 70,000 people to the bowl, was one of the New Haven's heaviest passenger traffic days. They ran no fewer than 28 trains from New York and two from Boston to New Haven. About 40,000 of the big crowd was from New York, with the majority riding on the New Haven both ways. The specials, the last starting from New York around 11 o'clock, run to New Haven with no stops. It is fast and wonderful service.

the rock island goes moderne

when the rock island lines announced an anti-swearing society a year ago it was pretty certain that almost anything might be expected on that road . . . the idea of trying to run a railroad in y m c a language was grotesque . . . but it must have been succeeding because now the road, or at least the passenger department, which spends all the money the freight department can earn, has gone haywire if one is to judge by the most recent travel literature now going through the mails. this literature, produced by bernice challenger bost, drawings by frances davis, printed in the united states by carlstrand-rook company, chicago, is in the form of a remarkable booklet in green pink red tan purple blue . . . and we never did see a blue cactus even in our wildest days . . . a booklet entitled *dating the desert* and it is a riot in lower case exclusively from start to finish. the traveler is assured in black type that one never knows when she may meet a fairbanks or a barrymore aboard or sit next to a mccormick . . . but this shows that bernice challenger bost doesn't know hollywood because you can't be in a pullman ten minutes with a barrymore or a mccormick without knowing it. . . they all act as if they were riding on passes. 1. m. allen, vice president and passenger traffic manager of the road, is to be congratulated on the new circular . . . now what will the freight department do—if it has any money left?

Aviation Union Stations

There being no way to prevent it, we made a speech at or in the New York Advertising Club a good many years ago in which we described advertising as *news*. We have never changed our opinion in this respect. Provided the copy-writers haven't been kept chained to their desks while the executives of the agency accept the invitations abroad, the advertisements of the day usually are more interesting than a large part of other reading matter. Notice we say *other*, because we never did like the advertiser's request to put his stuff "next to reading matter." That's what well-written ad copy is: reading matter, and most of the time it's *news*.

You can find the most interesting things in the advertising pages of a magazine that carries live accounts. Isn't it *news* that the Curtiss-Wright people are offering to the flying public a chain of airports reaching from coast to coast, like union stations for the railroads? And, we learn from the advertisement, that all these airports are open to en-

tire aviation industry, the first enterprise of the kind. Isn't it *news* to many persons that what they knew as "gun iron" is a development in metallurgy that began with the making of the first cannons? Did you know that more than 65 railroads are using one kind of roller bearings?

We might use up a large share of the revenue telling about the latest news as it appears in the advertisements of every issue. But of course you read them. If you didn't they wouldn't be there—not very long.

Words Cost Money

Thirty or thirty-five years ago no business communication was so long as the average railroad telegram, particularly if it came from some traffic man. We often wondered in those days when $75 a month meant social standing in our town, how many million words went by railroad wire in a year, and how much of the total might have served as well if sent by train mail. We had reason to wonder because typewriters were not then used in railroad offices; pen and pencil were the only weapons. Then came a blessed order from somewhere restricting the use of the telegraph to extremely important matters. Now we have the printer-telegraph on some lines and typewriters everywhere.

It is doubtful whether men ever realize just how gabby they are until they have to pay for their verbosity word by word. The most recent testimony on this point is in a report from Washington which says the army and navy radio, plus the war department's leased wires, saved the government $1,885,566 in telegraph tolls during the fiscal year ended June 30, last. The number of words transmitted by the navy was placed at 6,589,870. The army score has not been reported.

It is somewhat amazing to learn that 6,589,870 words would fill 7322 columns of the average newspaper—about 900 words to a column! This is enough language to cover 5293 pages of this magazine, or about 6300 pages of a 7-column newspaper. What, in times of peace, can these navy officers talk about, to use so many words? Doubtless the officers in the army are equally loquacious, so the two branches of national protection reeled off at least 13,000,000 words last year by wire or radio. Sending messages is a form of transportation someone ought to regulate still more rigidly than at present.

Will Inland Waterways Pay?

It seems to us that John M. Fitzgerald, assistant to the chairman of the Committee on Public Relations of the Eastern Railroads, said a great deal in a very few words when he addressed the Associated Traffic Clubs of America, a few weeks ago. Said he:

> The proposal to supplement existing transport facilities with a system of artificial waterways admittedly involves the expenditure of millions of tax money. Before we add to the already heavy tax burden of our citizens, we should determine whether we really need additional transportation and whether artificial waterways will furnish a quality of service which shippers can and will use.

When we see the entire nation taxed to build and maintain waterways for one section, as for example, the Ohio River project recently improved so that it may carry a heavy tonnage of coal and ores; when we contemplate the hundreds of millions wasted on the Erie Canal; the tremendous expense of the Warrior River and Mississippi waterways, all competing with railroads; when we remember the millions wasted on the Missouri River, and then realize that railroads are ready and able to carry all the traffic all these waterways handle, and at a rate lower than in any other country in the world—then we wonder whether it isn't true that some very great men are literally waterway-minded, and mentally incapable of any other viewpoint. There was a time when the Erie Canal was an important help. It is true, also, that some of the short waterway connections are invaluable. But for the most part the spending of millions on government barge lines is as unfair, and their economic value as questionable—especially when frozen over—as are the old canals that Washington built. Men are queer things. Some fishermen throw back into the lake anything but a large bass. Some cattlemen can't see anything except a Hereford steer. Some engineers live only in dreams of useless and costly canals.

Something to Talk About Anyway

Disclaiming any wish to appear facetious in referring to a matter so important, we still are unable to forbear mentioning the two long dispatches describing proposed consolidations of the railroads. One came from New York, the other from Washington. A stranger never would imagine they refer to the same country. The New York reporter says the plan proposed by the Interstate Commerce Commission is "ready to be submitted to congress," which, by the way, has nothing whatever to do with it right now, that the plan divides the railroads of the United States into 20 great systems, four of them in the eastern part of the United States and one in New England with various governors of New England states holding places on the boards of directors.

The Washington dispatch describes a five-system allocation of eastern railroads among the Pennsylvania, New York Central, Baltimore & Ohio, Chesapeake & Ohio and Wabash; approval of the Great Northern-Northern Pacific unification, with the Chicago, Burlington & Quincy excluded, to be used as a separate system basis; a multi-system allocation in New England built up around the principal carriers in that section; allocation of Southern carriers much along present naturally developed alignments, with Seaboard assigned to Southern; realignment of the southwestern carriers with the Illinois Central and strong western lines

Chairman Lewis is said to favor the five-system plan for the East. The Washington writer says, gravely too, that the plan probably will be adopted "in the next few weeks," and if this isn't optimism then China is a popular vacation land. A government official of very high standing expressed the belief, recently, in writing that it will be ten years before consolidation of railroads in the United States will be accomplished—and then to scratched it out. We believe he is nearly right. At any rate there seems no occasion right now to print the commission's so-called plan not, at least, until that body presents it publicly. It may be just as well to wait until Wall Street has the various systems arranged satisfactorily. At this writing it is difficult to say whether there are to be four, five, 18 or 20 systems.

W. J. Black.

Passenger Trains Still Are Supreme

By W. J. Black
Passenger Traffic Manager

The steam passenger train still is preferred for safe, reliable and comfortable transportation, especially over long distances and in all kinds of weather, day and night. And this without any disparagement of highway or air transport.

To run fast trains smoothly and in safety requires the very best roadbed, equipment and personnel. Those primary requisites the Santa Fe has. It is a modern railroad throughout and kept at a high standard.

For example, the Santa Fe is the shortest line, Chicago to Los Angeles. It is the only double-tracked railroad between those cities, and the only one under the same management "all the way."

The Santa Fe has almost 5500 miles of main track protected by automatic block signals or train control, safeguarding the routes of the Santa Fe flyers. Alert, fast-run engineers welcome these sentinels of safety.

The roadbed is smooth and well oiled. The steel rails are heavy, the steel cars are modern, and the locomotives are powerful.

Station hotels, dining rooms and lunch counters, under management of Fred Harvey, are located at convenient points en route. All through passenger trains, not carrying dining cars, are scheduled to stop at such dining stations, of which 40 have dining rooms and 55 have lunch rooms. Hotel accommodations are provided at 23 points. The dollar meal, served in dining rooms for train passengers, is a notable achievement in catering.

Fred Harvey operates dining cars on three of the Santa Fe's seven daily California trains, viz., The Chief, California Limited and Grand Canyon Limited, and on other through trains between Chicago and Kansas City.

Running time for these seven trains from Chicago to Los Angeles, westbound, varies from 58 hours to 71 hours 45 minutes. Four mountain ranges are crossed, which slows down the speed somewhat. Nevertheless The Chief now makes the 2228 miles, Chicago to Los Angeles, in 58 hours—only two nights on the way, and three nights from New York.

Santa Fe passenger service is linked with air service in several train-plane schedules, trains being used at night and planes by day. One combination comprises the Santa Fe Ry., Pennsylvania R. R., and Transcontinental Air Transport, Inc., for the ocean to ocean journey between New York and Los Angeles. Santa Fe rails are used between Waynoka, Oklahoma, and Clovis, New Mexico, for night runs.

The Universal Air Line System, between New York or St. Louis and Los Angeles, routes its passengers on Santa Fe trains west of Garden City, Kansas. New York Central Lines are now used between New York, Boston and Cleveland. Airplanes are flown between Cleveland and Garden City. This system also uses the Santa Fe between Garden City and Denver.

Scenic Airways, Inc., with headquarters at Grand Canyon, operates sightseeing trips in the Grand Canyon region.

Truck Used by Southern Pacific for Handling Locomotive Drive Wheel Tires.

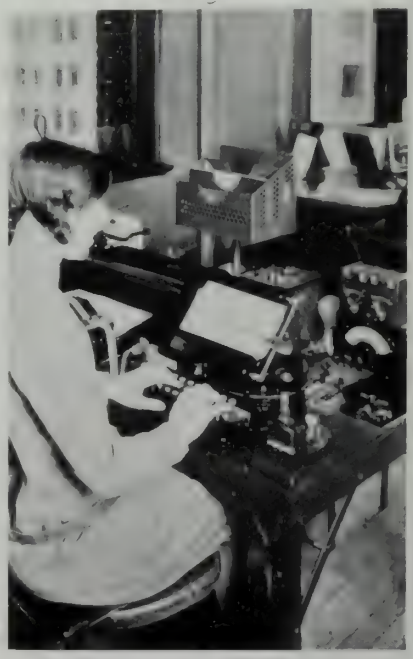
Transportation in Cities

Of the 667 electric railways in the United States, 300 do 90 per cent of all the business. Taxicab companies are said to number 2250, of which only 350 are large concerns. Out of a total of 6732 bus companies, only 414 own 10 or more buses. Street railway companies at present are operating approximately 10,700 buses, carrying more than one billion passengers each year, in addition to the 15 billion passengers carried by electric cars.

A Labor Saving Truck

The Southern Pacific has a number of metal two-wheel trucks by means of which one man can handle locomotive drive wheel tires. By merely raising the handle of the truck, the heavy tire is unloaded. The truck is adjustable for various sized tires, there being six holes or slots in the top of the flat piece of metal that supports the upper part of the tire. A special clamp which can be hooked into these various slots makes it adjustable for various sizes.

"The most dangerous occupation in life seems to be that of the pedestrian."—*Sir William Joynson-Hicks.*



Printer Telegraph in Rock Island's Chicago Office.

Queer Things Recorded in November

Keystone Photo

Engineers Will Be Interested in This Unusual Picture Showing the Boiler Room of the Palatial French Liner Ile de France.

OPPOSING the operation of big buses on public highways, F. D. Hewitt, district attorney of the 14th judicial circuit, has filed suit in chancery court against the Capitol Stages, Inc., and the Pickwick-Greyhound Lines, seeking an injunction to stop the buses from using the highways of Pike county. The suit seeks recovery of $3,000 for damages to the roads.

"The Illinois Central has 14 passenger trains every day making it unnecessary for the traveling public to use the buses," Mr. Hewitt said. "The highways are built for the service of the people and not for public service corporations operating for hire."

It Never Has Succeeded

C. E. Mills, driving his automobile down a railroad track, near Salinas, Cal., recently saw a train coming, but feeling he had the right of way, he told police later, he kept on going. Train and automobile met head-on, the impact carrying Mills' machine 200 feet and demolished it. Extricated from the wreckage and taken to a hospital, he was found to have escaped without a bruise or scratch.

What Became of the Can?

A switch engine and the alertness of police at Tuscaloosa, Ala., Nov. 7, prevented the delivery of 500 gallons of liquor apparently destined for Birmingham. Just before dawn a two-ton truck was sideswiped by the switch engine as it crossed the tracks near the southern edge of the city. The truck careened wildly, but eventually righted itself and continued on toward Birmingham. Discovery at the edge of the highway of a gallon can containing whisky aroused the suspicions of police, and they picked up a "wet" trail which led them 14 miles along the highway, where the truck was discovered abandoned, with its cargo intact.

Careful Railroading

Up in Wisconsin, near Ovonto, Nov. 10, a freight train struck the car in which Clayton Aubrey and his family were taking eggs to market.

The car was smashed, but the Aubreys were unhurt and not a single egg shell was broken.

More Good Railroading

Near Cadmus, Mich., Nov. 4, an engine and 37 freight cars passed over Mrs. Charles B. Chander of Adrian after she had slipped and fallen between the tracks. She arose unhurt.

Mussolini Knows How To Stop Noise

The Palazzio Venizio at Rome, the new quarters of Premier Mussolini with its gorgeous lofty ceilings and spacious room would be an ideal place to work if it were not for the unceasing noise of street cars. An endless number of them pass right under the window where Il Duce works. For this reason, in the near future, all street car lines along this part of the city are to be removed and replaced with buses which will pass on the other side of the palace.

A Real Thanksgiving

A motorist who ran out of gasoline on a country highway a few miles from Kenosha, Wis., Nov. 27, tried in vain to get cars to stop as they passed him. Finally, he started lighting matches and holding them up to his face as he saw a car approach. One car slowed down, and a hand was thrust out of the window. An envelop was tossed at his feet. He picked it up and found $500 in bills.

Section Men of Russia

Track men will be interested in the photograph reproduced here showing a section gang on what is now called the Turkestan Siberian rail construction. In the absence of definite descriptive material the picture was sent to Col. B. O. Johnson, assistant to the vice president, operation, of the Northern Pacific at St. Paul whose familiarity with railroad

Doubtless the Undress Uniform of the Section Men on the Russian-Turkestan Railway Construction.

conditions in Russia and Manchuria has been referred to in this magazine upon several occasions. Colonel Johnson replies, interestingly:

"I have no doubt this photograph relates to construction of a railroad which the Russians are building from Semipalatinsk southwesterly into Russian Turkestan, with its far terminal at Tashkend where it will connect with existing Russian railway systems. I happen to know the chief engineer of this project and saw him while he was in this country eighteen months ago purchasing equipment. Construction was supposed to take about three years; hence, should be finished next year.

"This railroad goes down through the Khirgiz country, but the so-called natives in the attached photograph certainly do not look like the native Khirgiz. I rather think they are native Siberian Russians. The picture is a genuine one as I can tell by the distinctive Russian tools the laborers hold in their hands."

A Railroad's Rolling College

By Geo. F. Paul

A rolling college of railroading is one of the ways that the Great Northern's operating department keeps the road's performance up to high level. The enrollment in this traveling school includes every one of the 30,000 employes who have anything to do with the operation of trains or the maintenance of equipment and tracks. This includes engineers, firemen, conductors brakemen, switchmen dispatchers, division officials, hostlers and section foremen.

The college consists of five steel cars which house classrooms, a complete mechanical laboratory, motion picture theater, and a staff of instructors and members of the examining board who have living quarters on the train. The itinerary includes all the division points on the 8,000 miles of line. One of the purposes of this school of railroading is to see to it that the men upon whom the safe operation of the trains depends are "on their toes" mentally speaking.

The movie car is popular. The floor is inclined in order to give a good view of the screen from every seat. Music is supplied by a radio. The Safety First lessons are put over by movies. The right and wrong ways of doing things are shown, the safe and the unsafe methods, and the results of the unsafe methods are pictured in such a way that the lesson is likely to be remembered.

Two cars are used for mechanical appliances and equipment. The models are built so that the working parts are exposed. The trainmen can thus see what goes on inside the appliances they handle every day, and can learn the most efficient methods of handling them.

Mode's So Built That the Men May See the Insides, Shown at Top.

In Circle: The Motion Picture Educational Car.

Lower, a Visitor Hears About Air Brakes. Pictures Taken in Some of the Great Northern's College Cars for Employes.

It's Poor Vision Causes These Accidents

An Optometrist Gives Figures

By

Walter Raleigh

How to Keep From Growing Old. Year After Year the Tragic Toll of Recklessness Is Paid. Copyright, 1929, by International Equipments, Inc.

SIXTY-THREE per cent of motor car accidents occur on unobstructed highways with dry surfaces, during clear weather and in daylight, proving that human frailties are the dominant cause of motor car accidents.

Of all the causes for accidents, poor vision plays a leading role. In fact, from five to ten per cent of the accidents, where injury or death is involved, the records show the vision to be at fault.

The records of the National Advisory Commission on Vision for Motor Drivers bear out these statements, according to Dr. Edwin H. Silver, its chairman. Dr. Silver has been studying the problem of eye strain in connection with traffic difficulties for fifteen years. As a noted optometrist, neurologist, and member of the National Safety Council, he has investigated the records and files of America's large cities. It is his conviction that a better understanding of eye strain, of vision tests of traffic signals, would bring about a large decrease in traffic fatalities.

Any impairment in vision, Dr. Silver says, constitutes a hazard in motor car operation. The manufacturers have recognized this in making the vision as wide as possible through the windshield, eliminating thick front posts and doing away with "blind spots." A pencil held before the eye will obscure the sun, and any defect in vision acts in a similar manner on a graduated scale proportionate with the amount of the deficiency.

"An automobile," Dr. Silver says, "is entirely subject to the handling of the driver, and he, in turn, is governed to a large extent by the condition of his vision.

"An engineer, before he is permitted to pull the throttle on a locomotive, must serve for five or more years as a fireman, and must undergo a thorough physical test, including a drastic examination of his eyes. But the man who drives a car, which does not run on a track and can go from one side of the street or highway to the other, traveling from ten to ninety miles an hour, is not, as a rule, required to pass any special tests as to his clearness of vision.

"Eyes have a range of approximately 180 degrees. By this I mean that while a person can discern movement as such at almost right angles to the eye, yet the real sense of visual acuity is confined within a radius of from five to ten degrees. The head must turn in order to determine definitely anything occurring outside that radius.

"Trying to watch the road ahead and having the vision constantly distracted by objects outside the five or ten degree range of vision naturally produces eye-strain. This strain is bad enough when the vision is normal, but a defective vision increases this strain greatly. The rule is that poor vision causes blur or strain, eye-strain causes fatigue, fatigue slows action and slowness of action causes accidents."

New York, the District of Columbia, Maryland, New Jersey, Connecticut, Rhode Island and Massachusetts have taken cognizance of the danger existing in drivers operating with faulty vision, and have added an eye test to the examination that

The New England Transportation Co., Highway Division of the New Haven System, Operates This Mack, One of 50 or More in New England.

prospective motor drivers must pass. The American Optometric Association would like to see other states recognize this principle in order to make the highways and streets safer for all.

In fact, the majority of the drivers who have long operated cars are frequently not aware of having any special impairment of sight. They do not realize that they cannot see clearly. The percentage of visual deficiency may be so small as to be almost unnoticeable, but it is there that a little deficiency may cause a driver to misjudge, perhaps by a few inches, the path of an approaching car, or the step of a pedestrian, and an accident may follow.

"There is a minimum of visual acuity beyond which it is not safe to operate a motor vehicle under any condition," Dr. Silver says, judging by carefully kept records and thousands of tests over a period of years. "When this minimum is passed the person should not have a permit to drive.

"There are too many persons who have sufficiently good vision to drive by day but not at night. By-day accident frequency is proportioned to the square of the traffic density. Then if the traffic density is doubled the accident frequency is quadrupled. By night traffic densities are rarely equal to the daylight hours, so that the records show that doubling the traffic density only doubles the accident frequency instead of quadrupling it as in the daytime.

"Many drivers suffer from nervous conditions which are the result of poor vision, and this should prohibit them from driving anywhere but on the open road, until such condition is relieved.

"The ideal driver should have, first, good vision which is the ability to see clearly. Second, he should have good mentality, which is the ability to think and reason quickly. Third, he should have good bodily coordination, the ability to act quickly, and fourth and most important of all, he should have good character, which will give him the ability to respect the law and realize his responsibility.

Dr. E. H. Silver

"Reasoning thus," Dr. Silver believes, "that good vision, more mental and physical alertness and less speed will reduce the mounting accident rate."

The Motor Vision Commission of the American Optometric Association is seeking at present, through the employing of outside scientists of national repute, to determine the minimum of visual efficiency at which it is safe to drive. With this once determined, an examiner will have something on which to base his tests.

"The association is also endeavoring through its nation-wide membership, to aid traffic officials in testing the eyes of prospective drivers," declared Dr. Silver. "Charts are prepared and the traffic examiners have simple rules by which they can detect any major defect in an applicant's sight. When a doubt arises, the applicant is told to consult any firm or individual competent to pass final judgement on his eyes, and bring back a report certifying to this condition of his eyes before a permit can be given him.

"A man who drives under the handicap of poor vision is comparable to a man driving in a fog. He is a menace to other drivers and pedestrians. By modern methods frequently he may correct his defect, and then he should be held to account for maintaining his vision in good condition."

Dr. H. Bredossian of Philadelphia, division examiner for the aeronautic branch of the department of commerce, points out the rigid tests which an air pilot must pass as concerns his vision. He suggests that if automobile drivers were forced to have the same high standard of vi-

This Is One of the Graham Brothers' Motor Coaches Adopted by the Detroit Street Railways.

sion, the number of accidents would greatly decrease. New York has recently raised its standard of visual acuity for automobile drivers to twenty-forty. This means in plain terms that a man can see clearly at twenty feet an object that should be plainly visible to the man with normal sight at forty feet. The lowest standard is twenty-seventy and the commission is bending every effort to have this raised.

At the recent International Optical Congress in England, Dr. L. S. Palmer, of the Manchester College of Technology, gave it as his opinion that all drivers should be compelled to take rigid eye tests at intervals of from three to five years to be sure that their vision had not dropped below the point of safety in that time.

"When you consider that traffic officials of Washington, the capital of the nation, found a man operating an automobile at the same time he was drawing full compensation from the government for blindness incurred during the war; when you find, as in Baltimore, a man operating a fire truck at high speed through masses of traffic who had an impairment of vision that made it barely possible for him to see at all; when you consider that throughout the country there are drivers who are daily operating motor vehicles without knowing that they cannot judge distance properly because of defects in vision—then I submit that it is time for the responsible traffic authorities to devise ways and means of protecting all who use the streets and highways through higher standards of visual accuracy," Dr. Silver said.

The National Advisory Commission has also been giving special study to the best methods of operating traffic signals. While the work has not been completed, it has been found that numbers make the best highway markers and that color bands are easily discerned at night even by persons of normal vision, and colors are practically useless to the color-blind individual.

In connection with the use of certain colors in the semaphores now almost universally used, the three per cent of the drivers who are color blind have been benefited to some extent by scientific research. For example, orange-red and blue-green are almost as readily understandable to the color-blind man as to the one with perfect vision. The commission has samples of these colors in glasses and has made a number of tests which bear out their value. By the use of such lenses and a light, any traffic officer can make a color test on a motor driver's application. In fact, Dr. Bedrossian suggests that comprehensive vision tests could be given without the services of expert examiners because the eye faults most seriously hampering motorists can be easily detected by any layman after making a few simple tests.

"Canada is watching the pioneer work of the National Advisory Commission," said Dr. Silver, "and optometrists from that nation are working in full harmony. We have had many letters from Canadian officials and expect to see the work extended to the North."

Electric Kitchen Corner in a Modern Motor Coach Now Operating From Coast to Coast.

Where Passenger Revenues Go

A total of 472,349 tourists visited California by automobile from January 1 to August 31, this year, according to an announcement by the All-Year Club, Southern California's national tourist travel development organization.

Of this total, 105,981 residents of other states, using 36,545 motor cars, were tallied through 23 checking stations maintained at the state borders by the California department of agriculture, during August.

More than 215,000 of these tourists, in 71,775 automobiles, arrived directly in Southern California through the Yuma, Blythe and Daggett roads, during the eight months period, a 15 per cent increase over the corresponding period last year. California autos returning to the state from trips elsewhere are not included in the count.

The railroads are among the largest buyers of the nation's production of the principal materials.

Mail Plane of the Pacific Air Transport Inc. in the Boeing Lines.

Amazing Growth of Air Transport

Sixty-one Lines Carry Passengers

By W. J. Kennedy

As in the case of other intelligent business men, all the news of aviation is interesting to railroad men whether it tells about something happening in this country or far across the sea. But when we come down to what most of us call brass tacks the managers of transcontinental steam lines are chiefly concerned over the development of aviation in its strictly commercial aspects, the carrying of passengers, freight and express and mail. They are constantly, and very properly interested in all reports of speed, and more than anything else, in safety, fool-proof planes, landing speeds, and all that sort of thing. They don't care much about stunt-flying except as it applies to the work of the army and navy where it is needed.

It is an interesting sidelight on the disposition of railroad men to know that literally dozens of letter writers communicating with this magazine during the first year and a half of its existence asked particularly for articles about aviation, and many of the writers wished to know about the developments in foreign countries.

The aeronautics branch of the department of commerce, in its semi-monthly bulletin, issued last month, showed there are now 32 United States air lines carrying express, 47 lines carrying mail, and 61 air lines carrying passengers. Of this number 23 carry passengers only, 16 carry mail only, and two carry nothing but express. Of the remainder 12 carry passengers and express, 13 carry mail and passengers, five carry express and mail, and 13 carry mail, express and passengers.

During the year ended December 31, 1928, 35 companies operated over civil airways 59 different scheduled air lines and flew a total distance of 10,673,450 miles. These operators transported 49,713 passengers, 1,848,156 pounds of express, and 4,063,173 pounds of mail. A scheduled line is one having regular service over established routes.

– Herbert Photo

Vickers, Troop-Carrying Plane, Stretchers for the Wounded.

There are now 29,227 miles of established airways in the United States and 10,183 miles of these airways are now lighted for night flying. Moreover, 2,065 additional miles of lighted airways are now actually under construction.

The established airway system is the backbone of the Nation's commercial aviation, although operations over this network of airways constitute only about 15 per cent of all civil flying. During the past year scheduled operations have increased from 27,817 to 69,029 miles per day.

Additional routes covered by scheduled air lines since July 1, 1928, include St. Louis-Omaha, Tulsa-Ponca City, Oakland-San Jose, Milwaukee-Green Bay, Louisville-Cleveland, Akron-Cleveland, Chicago-Cleveland, Washington-New York, Cleveland-Buffalo, Brownsville-San Antonio, San Antonio-Fort Worth, Houston-New Orleans, Indianapolis-Chicago, Salt Lake-Great Falls, Salt Lake - Pocatello, Chicago - Pontiac,

Curtiss-Wright ports are open to the entire aviation industry

THE FIRST CHAIN OF AMERICAN AIR TERMINALS . . . NETWORKING THE COUNTRY

CURTISS-WRIGHT inaugurates the first nation-wide chain of airports in the United States. All of these ports are within easy reach of great business centers—and under unified ownership and management.

In all of them, the entire industry is welcome. Space is for lease to transport companies, aerial photographers, railroads who will engage in air transportation, manufacturers of planes, of engines, supplies, and accessories, and fuel—all commercial operators and private owners.

Student instruction and local passenger carrying, however, are reserved exclusively for Curtiss-Wright Flying Service.

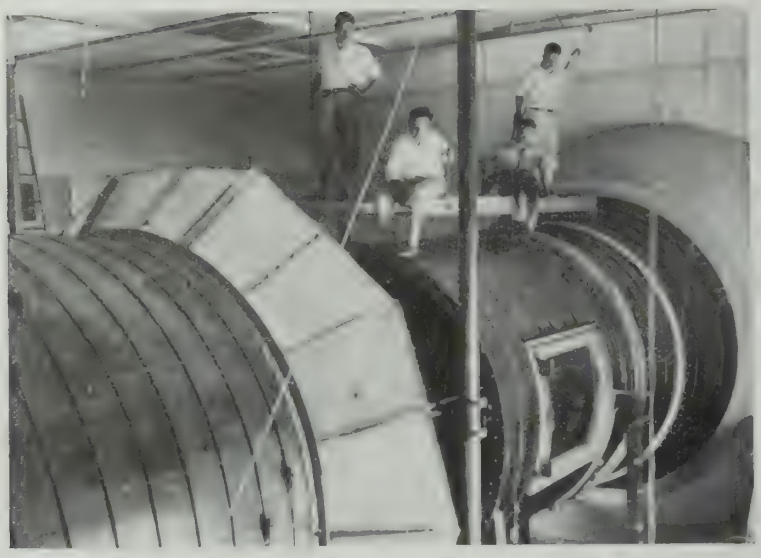
The executives of any business—every one concerned with or interested in the aviation industry—are cordially invited to inspect existing fields, which are indicated on the map above; and to call upon the executives of Curtiss-Wright Airports Corporation for further details concerning their present properties and their plans for future development.

On request—without obligation to you—we will send detailed information regarding any of these ports in which you may be interested.

Kindly address your inquiries to Dept. P-1, Curtiss-Wright Airports Corporation, 27 West 57th Street, New York City.

CURTISS-WRIGHT *Airports*

. . 27-29 WEST 57th STREET . NEW YORK CITY . .



The Huge Wind Tunnel At the California Institute of Technology At Pasadena. Part of the Daniel Guggenheim Graduate School of Aeronautics.

Cleveland-Bay City, Miami-Atlanta, Tampa-Daytona Beach, Atlanta-Chicago, St. Louis-Evansville, Los Angeles-Phoenix, Tulsa-Dallas, Louisville - Indianapolis, Indianapolis-Detroit, El Paso-Dallas, Des Moines-Waterloo, Tulsa-St. Louis, Sweetwater - Tulsa, Tulsa - Kansas City, Portland-Spokane, Kansas City-Minneapolis, Los Angeles-Kansas City, and Garden City-Cleveland.

These new routes include connections with Canada, Mexico, Central America, and South America. Foreign routes inaugurated during the year include New York-Montreal, Miami - Nassau, San Juan - Miami, Miami - Cristobal (Canal Zone), Brownsville-Mexico City, Cristobal-Mollendo (Peru), and Seattle-Vancouver.

The growing aggregate of air passenger traffic, the mounting total of air express tonnage, the increasing volume of air mail poundage all prove that the airplane has won a definite place in the general transportation scheme.

Because scheduled air transport is the backbone of America's commercial aeronautics, business men usually focus upon it the greater part of their attention. Notwithstanding this, however, scheduled operations comprise less than one-sixth of the civil flying in the United States, the remainder consisting of nonscheduled commercial services and private flying. These miscellaneous air services include sightseeing, student instruction, crop dusting, aerial photography, mapping, messenger service, advertising, charter or taxicab service, and several other classes of operations.

So rapidly has this class of flying increased that it is impossible to obtain authentic figures to indicate its progress. It is estimated, however, that during 1926 more than 18,000,000 miles were flown by miscellaneous operators; that in 1927 the mileage flown increased to 30,000,000 miles; and that in 1928 the total increased to 60,000,000 miles. What it was in 1929 is, of course, still to be reported.

The instruction of students in particular has increased at an unprecedented rate during the last 12 months. To take care of this augmented demand, the number of flying schools, which 12 months ago totaled 320, has now increased to nearly 600; and the constantly mounting number of applications for student pilots' permits indicate that during the next fiscal year the reputable flying schools probably will be taxed to the limit.

An important result of miscellaneous air service, which in turn is resulting in the further development of nonscheduled flying, has been the steady increase in the number of airports in the United States. It has long been recognized that established schedule routes require proper terminals and ground facilities; but many cities refused at first to establish their own airports unless regular routes were promised them. Miscellaneous services, however, have now grown to such proportions that they far exceed in volume the scheduled operations, with the result that many cities throughout the nation have been forced to acquire and construct adequate airports to take care of this traffic.

Until recently these miscellaneous operations were frequently considered doubtful by cities contemplating municipal airports. With the advent of the department of commerce's licensing system, however, by which prospective users of nonscheduled services can determine the airworthiness of planes and competency of pilots, this doubt is being dissipated steadily. With the passage of uniform state legislation covering intrastate air commerce, unscrupulous pilots and operators flying aircraft of questionable airworthiness are being rapidly eliminated. As a result, public confidence is being established completely in this type of operations as well as in scheduled air transport.

Private flying, too, is developing very rapidly, and the widespread growth of flying clubs is further increasing these operations. By private flying is meant the operation of aircraft for sport and pleasure and for private use of business men. The latter phase includes aircraft utilization by salesmen when traveling from one territory to another; the operation of planes to carry business executives on inspection visits to various factories and branches; and the use of planes by doctors, engineers, lecturers, and numerous others who have occasion to travel more or less regularly over medium distances.

The not unreasonable price of modern airplanes and the fairly low costs of their operation, with the establishing of navigational facilities and other aids being provided by the government and the industry itself, are now making it comparatively easy for the private owner to use his plane with a high degree of safety, comfort, profit and satisfaction.

Perhaps the most important development during the past year has been the establishing of combined airplane and railroad passenger service. Although this has been projected for several years, only a few lines had actually started operations prior to July 1, 1928. Now, in November, 1929, there are five transcontinental air-rail lines in daily operation from coast to coast. Whereas before this hook-up of air lines and railroads the minimum time required to complete a journey from New York to Los Angeles by rail was about 100 hours, the same trip can now be made in 46 hours. Railroads already collaborating with established air lines include the Pennsylvania, New York Central, Chicago & Alton, Atchison, Topeka & Santa Fe, and others. Furthermore, many other major railroads and important steamship lines are contemplating similar hook-ups, which will undoubtedly become effective within the next 12 months.

During the calendar year 1928 the establishments engaged primarily in the manufacture of aircraft built 4,217 airplanes, valued at $35,847,-391, and 129 seaplanes and amphibians, valued at $3,143,118. The production in 1927 was 1,888 airplanes, valued at $12,224,979, and 107 seaplanes and amphibians, valued at $2,-280,020.

Combined production of all classes of heavier-than-air craft—airplanes, seaplanes, and amphibians—increased from 1,995, valued at $14,514,999, in 1927, to 4,346, valued at $38,990,-509, in 1928, the rates of increase being 117.8 per cent in number and 168.8 per cent in value.

Of the 94 establishments reporting for 1928, 16 were in New York; 14 in California; 9 in Michigan; 8 each in Kansas and Illinois; 7 in Ohio; 6 in Missouri; 4 in Iowa; 3 in Pennsylvania; 2 each in Arkansas, Maryland, Oklahoma, and Texas; and 1 each in Colorado, Delaware, Minnesota, Nebraska, New Jersey, Rhode Island, Virginia, Washington, West Virginia, and Wisconsin.

During the year a total of 3,496 new aircraft engines were constructed whose value aggregated $19,915,-624. Aircraft propellers manufactured in 1928 numbered 14,358, of which 9,163 were wood, 4,809 metal, and 386 all other materials. Comparative figures for previous years are not available, as no previous census had been taken of aircraft engines and propellers.

Herbert Photo

Said to Be the World's Largest Beacon. Installed At Long Beach, Municipal Airport.

Because of America's freedom from international boundaries, great distances between centers of population, high standards of living, density of commerce, and other inherent advantages, the development of a great air transport system is inevitable. Already American airplanes are flying more than 80,000 miles a day; already we have more than 35,000 miles of airways; already we have 466 private and commercial airports and 456 municipal airports, with 1,269 additional airports proposed, all in process of construction, a number which far exceeds the total in all of Europe.

Herbert Photo

Radio Beacon At Mitchell Field, N. Y. Can Guide Airmen 1400 Miles At Night, Especially During Fogs. An Automatic Device.

Furthermore, Europe has been ten years in building up its present air-transport system, whereas America's has been developed almost entirely during the past three. Then, too, Europe's development has been aided and abetted by huge government subsidies, whereas America's has been due wholly to civil initiative. In the United States private enterprise has enabled the operator to get trained personnel and invaluable experience, has permitted the manufacturer to improve and design better aircraft, has made it possible for the department of commerce to establish a far-flung system of airways and aids to air navigation.

Wind Indicator Invented By Clay Jackson of Oakland, Cal. The Vane Opens or Closes Light Circuits Showing Aviators What to Do.

What Are Wind Tunnels?

Wind tunnels have had a most important part in the advancement of aeronautics. It has given the observer definite knowledge as to lifting power of surfaces and the measured resistance of the different forms to determine their relative value.

A wind tunnel is an elongated chamber usually a tube divergent at the ends through which a steady air stream may be forced or drawn. Models of airfoils, of aircraft, or of propellers may be placed in the middle portion of the tunnel called the experiment chamber or working chamber, and supported by suitable balances placed outside the air stream so that the forces, moments, etc., due to the moving air, may be measured.

The three principal items considered in the design of a wind tunnel are: the first cost of housing the facilities; cost of power required for operation; the efficiency and accuracy of test data.

There are more than 20 wind tunnels of varying sizes and shapes in use at present. One of the smallest is that of the bureau of standards at Washington, a round tunnel three feet in diameter. The air is forced through by an eight-blade propeller seven feet in diameter revolving 1000 revolutions a minute, making a maximum air speed of 200 miles an hour. This is done with a 100 horsepower motor.

Perhaps the largest is the 20-foot propeller tunnel of the National Advisory Committee for Aeronautics. This is a closed circuit tunnel 20 feet in diameter and 166 feet long. It is

Herbert Photo

This Vickers Plane Carried 52 Men When the British Rushed Troops to Jerusalem Last Summer.

equipped with an eight-blade propeller 20 feet in diameter turning 330 revolutions a minute, driven by two 1000 horsepower Diesel motors creating a maximum air speed of 110 miles an hour.

The wind tunnel at the California Institute of Technology, built and operated under the Guggenheim Foundation for the Promotion of Aeronautics, is ten feet in diameter, closed circuit 98 feet long. It is equipped with a four-blade propeller 15 feet in diameter turning 920 revolutions a minute, creating a maximum air speed of 200 an hour, operated by a 750 horsepower motor.

The larger tunnels permit the use of larger models in experimental work, and measure with greater accuracy the effect of the air stream which affects an airplane in actual flight.

Going Up to Go Lower

A passenger airplane converted into an air ambulance took off from Albuquerque Nov. 6 for Stratford, Texas, carrying Mrs. Mary Craft, 69, to a lower altitude in an effort to save her life. The physicians did not believe Mrs. Craft could withstand the long train ride. A bed was fitted into a cabin monoplane. Physicians said use of the airplane would reduce the strain of the trip to a minimum.

For the Night Fliers

C. W. G.

Two of the highest powered aviation beacons on the Pacific Coast are on the 4000-foot summit of Mt. Diablo, near San Francisco, and the Merced hills near Los Angeles. Both were erected by the Standard Oil Co. last summer. The beacons develop ten million candlepower, and under favorable conditions are said to be visible for 100 miles. Each is equipped with a 36-inch lens and reflector. The lamps are on 75-foot steel towers, and are revolved six times a minute. The beacons are equipped with an ingenious device holding two 1500-watt incandescent lamps, one directly in front of the focal point of the reflector. If this lamp burns out the second lamp is thrown over automatically to take its place so that there is no interruption in the operation of the beacon. An automatic astronomical clock turns the beacons on and off at sunset and sunrise.

How Air Mail Has Grown

In 1850, transport of mail across the continent from New York to San Francisco required 24 days, being carried over the eastern half of the United States by train, and the western section by stage coach.

This time was reduced to 10½ days in 1860 through the use of the historic pony express. In 1876, the "Iron Horse" had spanned the continent, and mail was transported in 100 hours. By 1928, and this had been speeded to 85 hours.

But, in 1920, there was a new and more startling development; airplanes made the coast-to-coast flight with mail in 32 hours.

At the conclusion of the World War, this government had thousands of airplanes and airplane motors in stock. Signing of the armistice left a surplus stock which was almost staggering in numbers and dollar valuation. While the war department was puzzling itself about what to do with this surplus equipment, the post office department decided, in 1918, to experiment with airplanes as carriers of mail.

For about 30 days mail was carried between New York and Washington in army planes not, however, in sufficient quantities to pay operating costs. But it was demonstrated that it was feasible, from an aviation standpoint, to accomplish the department's desired aims.

It was not until 1926, however, that other sections of the United States began to awaken to the fact that there was a distinct advantage in air mail service. The first "feeder" line was that between Pasco, Wash., and Salt Lake City, for connection with the transcontinental route. This was established in April of 1926. During the same month, St. Louis and Chicago were connected.

In the same year—1926—Los Angeles' business interests got together, privately subscribed about $410,000, hired competent executives, and launched an air mail line from Los Angeles to Salt Lake. They expected they would have to dig into their pockets again to keep it running.

At the end of the first month's operations, the route actually showed a profit, the first ever to accomplish this feat. Western Air Express also successfully established the first daily passenger service in connection with the air mail, from Los Angeles to Salt Lake.

In September of 1926 the Pacific Coast from Seattle to Los Angeles was connected by air mail, and since then the growth has been amazing, so much so that to enumerate the opening of new lines would be only tiresome.

Ten Million Candle Power Aviation Beacon on Mt. Diablo, Erected by the Standard Oil Co.

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With only an occasional glance at this dial in my cab, I can

Slow down *exactly* to Speed Orders
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The bell chart of the LOCO VALVE PILOT tells in plain figures, the value of this important locomotive accessory in saving fuel, giving greater tractive power and in producing higher all round efficiency in operation.

Little Stories About Big Men

It Was Not the Meat That Caesar Ate That Made Him Great, Says a Yale Man

We have fallen into the habit of believing men are very much alike wherever one meets them; men are only boys grown tall, hearts don't change much after all, and other wise cracks that pass for philosophy, in our own opinion. But the cold truth is that men are alike in only a few respects, mostly biological.

In railroading it is the accepted rule that what we call legal presidents create less disturbance among the personnel than practically any other kind of chief executive taking charge of a property. Such a president is satisfied to make a few shifts in the legal department for what he believes to be the good of the service, keeping his hands off the operating and traffic departments, provided those departments have been delivering the goods to the satisfaction of the board.

An operating president, however, very often is of a different stamp. Here is an official who can not shift the blame for unsatisfactory results to the idiosyncracies of some court. Quite frequently, not always by any means, but very often this gentleman brings some of his tried and true hustlers along with him, and removes or demotes men long in the service. And this rule applies in many instances among traffic men who, like the operating officers, can put over their alibis for only a very limited time. Engineer presidents are classed with the legal minds in their preference for their own men, but the rule does not hold good with any great regularity. When President Hoover took charge of the government it was believed that within a short time most of the department chiefs would be carrying transits and wearing laced boots, but for once the country was wrong.

Comes now John J. Pelley, operating man—John Jeremiah, if you please. When Mr. Pelley was taken from the Central of Georgia to be president of the New Haven System, last spring, a number of officials down in that part of Connecticut were excusably ill at ease. Here was a man about whom they knew nothing except that he was a bear for work, insisted upon satisfactory results, and was popularly said to have a reputation for getting just what he went after. Another thing these men didn't know was that John Pelley also had a very fine standing among western and southern railroaders for largeness of heart, clearness of vision, and a high regard for justice, a man who is big mentally as well as physically. However, it was to be remembered that John Pelley has an auburn appearance which, in common parlance, might mean a general shifting of things here and there, all to the discomfort of those who might be in the way.

John J. Pelley

It was an occasion for all round rejoicing, sighs of relief, and new determination to break endurance records when President Pelley rose at the banquet given to welcome him by the New Haven Railroad Club a month after his arrival—they had been waiting, doubtless, to see what this new man intended to do—and spoke these comforting words:

"I came here four weeks ago Thursday. I came alone. There are no others to come. Every man here shall have his chance, and every opportunity that may come his way."

As this feed was served in March and men were wearing vests there isn't a doubt in the world that if Mr. Pelley had listened carefully he might have heard a number of buttons shoot off into the air thereabouts as their owners breathed deeply the first breath of safety they had had up to that moment. When order had been restored Mr. Pelley said:

"I am impressed with the organization, with the railroad, with the great territory that it serves, and the people that we serve. The one big impression that I get here is the belief the New Haven men have in this railroad. I am tremendously impressed with that fact, that the men themselves believe in the future of the railroad.

"I also have another impression, and that is this: that the thing that we as an organization must do is to manufacture the greatest quantity of the best, the most inviting, the most satisfying transporation of all kinds—rail, water, trolley, bus, possibly truck, and I am not so sure but what in the air—and then *sell* the greatest possible amount of that transportation.

"You know, my friends, all the railroads of the country, I think

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I can say very safely, are giving good service nowadays. In order to do this thing that I have just said, as I believe we should and can do it, I believe we have got to give what we might call 'Service Plus.' What I mean by 'service plus' is that we must give to the public the service it may reasonably expect for the money, plus a little bit more.

"I think the way we can do that is for all of us to do the duty assigned to us in the way it may reasonably be expected that we should do it, and then find some way to do a little something else that will make some shipper, or some traveler, feel the more happy that he used our service.

"I think it is a great thing for us to come together in this way. As we learn to know one another better we learn to know what the other one is thinking about. And somehow I think this word 'together' is an inspiring word, anyhow.

"Someone has said it, or it has come into my mind from somewhere, that this word 'together' is quite a word. Coming together is a beginning; keeping together is progress; and working together is success."

Mr. Pelley, like practically all successful railroad executives started, like an elevator boy, at the bottom and worked his way up. If the available record is to be trusted he suffered one retarding handicap: He neglected to learn telegraphy. How he ever made the grade it is difficult to say. But of course he just had to be different, as in his reassuring speech before the Railroad Club. Telegraph operators, since the beginning of railroading almost, have become presidents—not all of them, naturally, but a good many—so John Pelley started bravely as a clerk for the Illinois Central Railroad at Anna, Ill., in 1899, and with that one company he stayed until he went to the New Haven; the Central of Georgia, it is of course remembered, being a member of the I. C. family.

Mr. Pelley was born at Anna where he got his first job, May 1, 1878, about the time Thomas Edison was being ridiculed because he thought he could make an incandescent electric light. He was 19 when he went to work as a clerk, and a year later he had changed to track work as an apprentice. This one act seems to be a pretty good key to the man's character because any youngster who would give up the comparatively soft clerkship to take up a shovel and all the other useful but perfectly dreadful things they have on a section, isn't afraid of hurting his hands or his back; and in those days there were no motor cars for section gangs, no patent tie tampers, rail saws and what not. When

Lynne L. White

a gang had pumped its way to work, labored ten hours for $1.10, and then pumped its way home the whole outfit was ready to drop into the hay regardless.

Still, John Pelley stuck to his job, and the record shows that in the fullness of time he became assistant foreman, then foreman, general foreman, and by 1904, which was making pretty good time if you ask us, he was track supervisor of the Peoria district. From that time forward, like the river, he just kept going along through all the responsible jobs created to maintain a railroad until he appears in 1911 as division superintendent, a place he held until 1915 when he became general superintendent of the company's southern lines. This post he kept for two years. In 1918 he was transferred to the northern lines, served three years as chairman of the car service committee at Chicago, and in 1923 was appointed general manager. A year later he was promoted to the vice presidency in charge of operation, and two years afterward was elected president of the Central of Georgia. This was in 1926.

Tom Johnson of Cleveland once said an executive is a man who decides things quickly and sometimes is right. They have to be right rather frequently in railroading to get to the top and stay there. They have to be strong physically, strong in character, dependable. To carry the load imposed upon such men in these days of keen competition, stifling regulation, and the irritating politics inescapably attached to such a place is a whale of a job. Many fail. Professor Anderson of Yale once declared it was not the meat that Caesar ate that made him great; it was something in the man apart from diet, some quality others lacked. And this is true of railroad presidents and general managers and others yet to rise.

Pushing to the Front

Lynne L. White, whose name now appears in the official roster of the Erie Railroad as assistant to President C. E. Denney, is another young man whom ambition, determination and hard work have brought to the front in railroad circles. A son of the West—he was born in Cedar Rapids, Iowa—with his preliminary education received in the grade and high schools of that city, his early boyhood dreams were of a railroad career. At the age of 15 he began to make those dreams a reality by seeking and landing his first job, that of office boy in the local office of the Chicago, Rock Island & Pacific Railroad. Application to his duties, a determination to find out what it was all about, supplemented by a continuance of his studies, including a business college course, soon brought Lynn White to the notice of his superiors, and it was not long before the office boy became a clerk and then a timekeeper.

In rapid succession other promotions followed, each bringing greater responsibilities. His knowledge of stenography and of the road resulted in his being called to take the position of secretary to his superintendent, and then to similar positions with the general superintendent and general manager.

Mr. White's first service with the Erie was in 1918 as chief clerk to the general manager at Chicago where he remained until October, 1920, when he became trainmaster of the Chicago division. Two years later he was promoted to superintendent of that division. His next step up-

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THE RAILROAD WORLD KNOWS

ward occurred in 1928 when he was sent to Huntington, Ind., with the duties of superintendent of the combined Chicago and Marion divisions of the Erie.

The tact and ability he displayed at Huntington won for him and the road he represented many warm and influential friends and still further recognition by his superiors of his executive ability, with the result that one year later he was transferred to Youngstown, Ohio, and given the title of assistant general manager of the western district.

In September of this year a vacancy was created in the official family of President Denney by the resignation of R. J. Bowman, assistant vice president, to accept a vice presidency tendered him by the Pere Marquette Railroad. A good man was needed to take over this job. Again Lynne White was called to take another step upward, this time direct into the general office and to a desk not far removed from that of the chief executive with the title of assistant to the president on the door.

His Ancestor a Railroader

Thomas Nelson Perkins who was elected acting president of the Boston & Maine Railroad when George Hannauer died unexpectedly November 2, is a direct descendant of the first railroad president in the United States. It was Col. Thomas Handasyd Perkins of Boston, a brother of his great grandfather, who was the first president of the Granite Railway, a crude tramway which was the first railroad in America, built in 1826 at Quincy, Mass., to carry granite for the Bunker Hill Monument. Other ancestors of Mr. Perkins held a prominent place in the building and operation of the pioneer railroads of the west, the Forbeses and Perkinses having been among the New England men who extended western frontiers by rail.

Mr. Perkins is a Fellow of Harvard University, having been graduated from Harvard College in 1891, and from Harvard Law School in 1894. He was captain of the Harvard crew which defeated Yale in 1891. He is the youngest man but one to be elected a Fellow of Harvard. He was born in Milton, Mass., in 1870.

He has been a member of the board of directors and executive committee of the Boston & Maine since 1924, and was elected chairman of the executive committee on March 7, 1928, to succeed Homer Loring. He has been a member of the Massachusetts bar for 35 years, and his activities and interests have been widespread.

For several years president of the interpretation tribunal of the World War reparations commission, Mr. Perkins was called again last spring to meet the problem of reparations when he was named as member of the reparations conference from the United States as alternate to Owen D. Young. He had served previously as the first American member of the reparations commission itself, during the time when the Dawes organization was getting under way, and he held the vote which would have decided a tie among the other four nations represented. It was by agreement between the reparations commission and the German government that Mr. Perkins, when he resigned as a member of the commission, was chosen president of the arbitral tribunal of interpretations.

Thomas Nelson Perkins

J. F. Holden

Once There Was a Mail Carrier

The popular public servant referred to in the headline is said to have spent his vacation walking around with his substitute, a story that comes to mind when one hears about a railroad man retiring in order to travel. The poor old, timeworn word, Psychology, has to be dragged in here because, after all, nothing else will explain the mail carrier's conduct; he walked over his old route pleasantly because he didn't have to do it.

And J. F. Holden, traffic vice president of the Kansas City Southern Railway, retiring January 1 after 50 years of railroading, is going to travel to Far Countries he always has wished to see. He won't have to make any particular dates. He will encounter no competitors trying to get his business. It won't matter much when he returns, and there will be no fussy auditor scrutinizing his expense account. But he will have to pay the bills himself—there's always a catch somewhere about the time everything seems just right.

Mr. Holden wishes it distinctly understood that he is not tired of railroading—did you ever see a man who would admit it, even if he were a bit weary of the old routine? Even after 52 years of it, and 38 of those years as an executive, a rare record indeed, Mr. Holden has no thought of slumping himself down in a dis-

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reputably restful chair, in gown and slippers, to read or sleep, the dream so many tired men cherish through busy years. Not much. He intends to take Mrs. Holden to Egypt and Greece and Italy, and other places the ship may visit, and when he returns to Kansas City he is going to play golf—hoping to get under 100 some day, no doubt—and he is going to do some fishing; an alluring program certainly.

When Mr. Holden was born, December 22, 1861, at Prince Albert, Canada, the father of the family was in the newspaper business, but sold out, luckily, in time to save the growing boy. The family moved to Whitby, the county seat of Ontario county, and went into the business of handling bankrupt concerns with a group of men who organized the Dominion Bank of Canada, now one of the large financial institutes of the nation at the North. This organization took up, among other bankrupt things, a railroad operating 20 miles north of Whitby, bought it at the sheriff's sale, extended it 25 miles farther on to Lindsay, and appointed Holden Senior to the post of managing director. So, while in his 'teens, the son began to show an interest in railroading so pronounced that when he was graduated from Whitby Collegiate Institute in 1877, when he was 16 years old, he hunted up a job as office boy for the superintendent and auditor.

Of course he learned telegraphy, learned how to keep the car records, check up agents' accounts, and eventually was selected to act occasionally as relief agent. Following this in the natural channel he became traveling auditor. We have had some experience with these gents in our time, none of them very pleasant, which makes us wonder how Holden, with his smile and his affability, ever kept things straight. In our youth the traveling auditor was about as welcome as a garnishment notice.

When Mr. Holden's father died in 1882 the railroad of which he was managing director was sold to the Midland Railroad of Canada, and Holden Junior became chief clerk in the freight traffic manager's office for the combined system. Later, the Midland bought the Toronto & Nippising and Holden became agent in Toronto for the company. When the Grand Trunk bought the Midland he went to work for the Credit Valley line, now part of the Canadian Pacific, with headquarters at Toronto. A visit to St. Louis turned young Holden's attention to a broader landscape resulting finally in his entering the Frisco's accounting department where he remained for three years until he became chief clerk in the freight traffic department.

From one important place to another he traveled the route upward as many a railroad man has done. In the Indian Territory he pioneered on new line, the Choctaw Coal & Railway, taking over the combined work of auditor and traffic manager, remaining through the building of 1000 miles until the property was sold to the Rock Island in 1902 when he had become vice president. Under the new ownership Mr. Holden went to Chicago as freight traffic manager. Returning to Oklahoma in 1906, Mr. Holden helped to build the Midland Valley railroad from the Arkansas coal fields to Arkansas City, Kas., and was its vice president and general manager. He joined the Kansas City Southern as vice president in 1910.

Mr. Holden's ability was nationally recognized, when the late Edward Chambers, then in charge of the traffic division of the United States railroads, called him to Washington during the World War to take charge of supervising the movement of traffic going to all the Shipping Board's ship construction locations throughout the United States.

The President Likes His Pipe

President Hoover has many warm admirers among the officers and employes of the Illinois Central System, many of whom came in close contact with him during the flood in the Lower Mississippi Valley in 1927. One is General Manager G. E. Patterson, who was Mr. Hoover's host on many trips through the flooded area. Mr. Patterson relates one incident at his own expense to illustrate the democracy of President Hoover.

Mr. Hoover was traveling with Mr. Patterson in one of the Illinois Central's office cars. It was after dinner, and the general manager was reading the day's mail in the office of the car for, as most railway men know, business hours on an office car are between dinner and breakfast, not between breakfast and dinner. Mr. Hoover was some place else and Mr. Patterson had taken advantage of the solitude to light his pipe. Mr. Patterson smokes cigars as a concession to social requirements but his pipe is his real smoking enjoyment.

Suddenly Jack Houlihan, the general manager's secretary, appeared with the news that Mr. Hoover was "coming back." There was no time to knock the ashes from the pipe. It was slipped into the drawer of the desk, and the general manager hurriedly lighted a cigar to account for the smoke in the room.

The secretary of commerce came in, dropped into a chair and quietly watched his host for some time. Then said he:

"Patterson, you'll never know what it is to enjoy a smoke until you learn to smoke a pipe." And the next President brought forth his pipe, filled and lighted it, and leaned back to demonstrate the enjoyment of pipe smoking.

The general manager gave the secretary of commerce one look, tossed away his cigar and, without a word, brought his still going pipe out of hiding. Perhaps his knowledge of the Hoover personality was the reason the general manager confidently predicted to his friends long before the conventions were held that Hoover would be the next President.

Who in the Sam Hill—

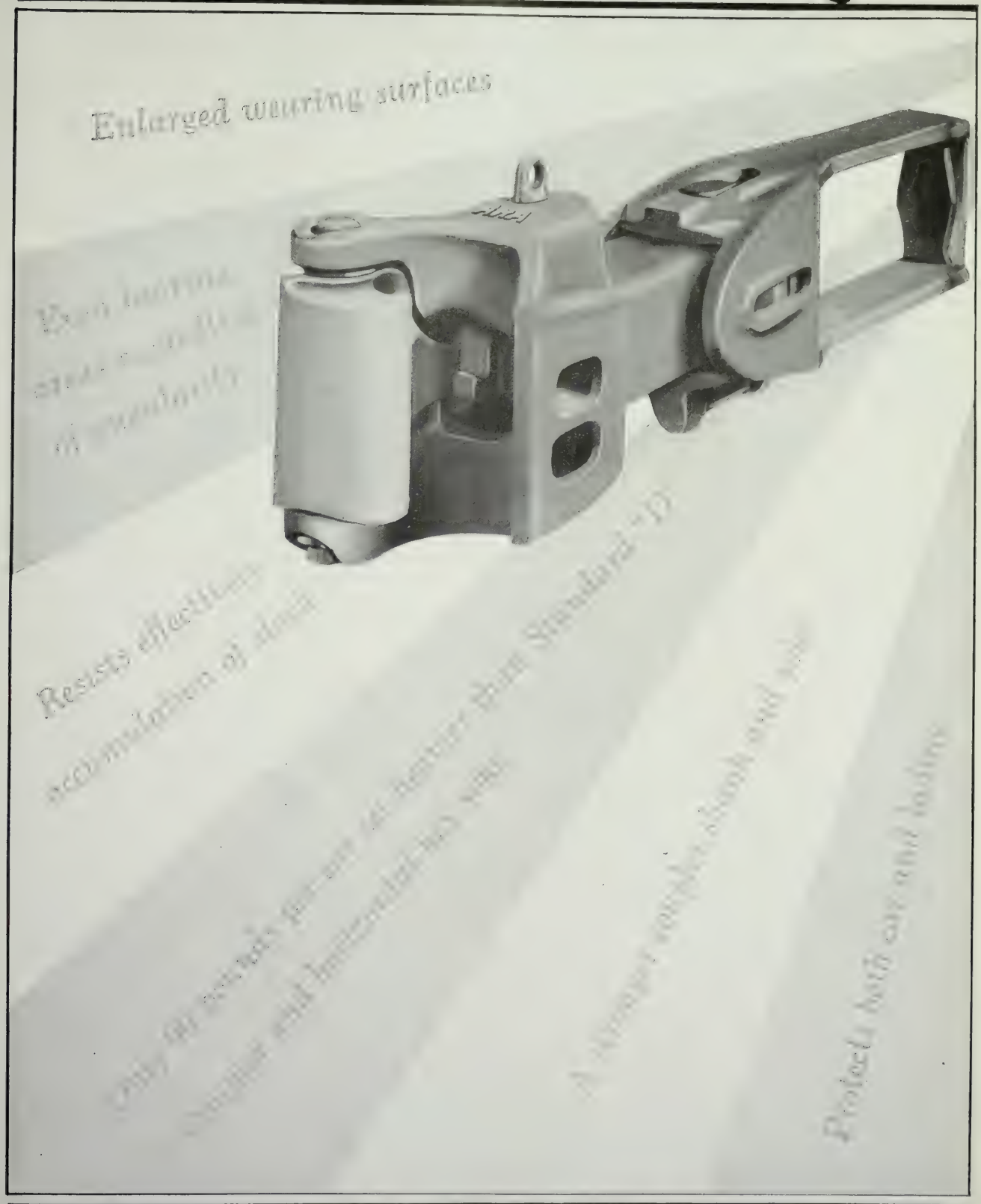
Henry Ford has contributed something to relieve the worry of those historically minded souls who have been wondering who in Sam Hill this fellow Sam Hill is and how he got to be part of the language.

When President Hoover arrived in Detroit on his way to the Edison celebration he stepped from a modern train de luxe to one made up of three cars and a locomotive from the Ford museum. Mr. Ford had renamed the old-time engine "Sam Hill" in honor of a famous locomotive engineer on the Michigan Central in the days when Edison was a train boy.

Sam Hill, it appears, was the speed merchant of his day. When the country folk saw a train whiz by they said: "There goes Sam Hill." After a while Sam Hill became a symbol of speed. A young fellow who burned up Main street in his buggy was said to be "going like Sam Hill."

Naturally, Sam Hill passed into an expletive. "Hill" isn't so far from an unmistakable cuss word, but, coupled with "Sam," was sufficiently safe to keep the deacon from being read out of church for profanity. It may seem tame in these days of naked language on the stage and in books. But "Sam Hill" is an interesting exhibit in the etymology of expletives and, even like its eponymic locomotive, may still show a lot of pep under the requisite degree of heat.

American Radial Coupler



AMERICAN STEEL FOUNDRIES

NEW YORK CHICAGO ST. LOUIS

The News of the Month

What's Been Going on in Transportation, Railroads, Automotive, Supply, Aviation

THE RAILROADS have been and are being operated at the highest level of efficiency ever achieved by them, despite a progressive increase that has taken place yearly in the matter of efficiency for the past seven years, according to a report prepared by the Bureau of Railway Economics and submitted to the annual meeting of the American Railway Association in Chicago November 21.

"Railways of the United States," the report says, "have greatly increased the effectiveness of their operations since the close of the federal control period. Their general efficiency has shown a progressive increase, year by year, since 1922 and stood at a higher level in 1928 than in any previous year. Further advance has been recorded in 1929, the first nine months showing an improvement of more than three per cent over 1928.

"An index of railway operating efficiency, based on 13 commonly utilized factors of performance, shows that compared with the average for the period from 1920 to 1924, taken as 100, the index figure for the nine months period this year was 121.6.

"In respect to 11 of these 13 factors, the performance shown for the first nine months of 1929 was the best on record. The two sole exceptions were the percentages for serviceable freight locomotives and the percentage of serviceable freight cars.

"Despite the apparent retrogression in the physical condition of locomotives assigned to freight service the carriers, during the same period, maintained a large surplus or reserve of motive power. From the beginning of 1929 to the end of September, for example, the railways had in reserve a daily average of 5,495 locomotives of all types, in serviceable condition and ready for traffic whenever the demand should come.

"The railways also had in reserve during the same period a daily average of 227,433 freight cars, showing that both motive power and freight car capacity was well protected against sudden or emergency demands. Car shortages remained, as in recent years, at a negligible minimum.

"It is clear from this situation that railway operating efficiency has been running close to a maximum level in 1929, with a correspondingly great contribution to economic progress.

"During 1928, the railways moved the equivalent of 436,087,000,000 tons of revenue freight one mile, and 31,718,000,000 passengers one mile. This was an average of 3,625 ton-miles and 264 passenger-miles for every man, woman and child in the United States. While the passenger service rendered by the railways has been declining since 1920, due to the increasing use of private and common carrier motor cars, the freight service has shown a gradual increase. During the past three years, in fact, the total number of ton-miles reported by the railways has been greater than in any previous three-year period in American history.

"During the first nine months of 1929, to October 1, the freight ton-mileage increased 5.8 per cent over 1928, 3.4 per cent over 1927, and 3.6 per cent over 1926. The total number of ton-miles reported for these nine months was greater than for the corresponding period of any previous year. Passenger-miles, however, showed a decline of 1.6 per cent under the corresponding nine months of 1928.

"Freight traffic for the year 1929 as a whole seems likely to be the greatest on record. If this expectation is realized, the four years from 1926 to 1929 will rank in the following order, each of the four having had a larger freight movement than in any year prior to 1926: First, 1929; second, 1926; third, 1928; fourth, 1927.

"The railways are thus maintaining their position as the premier agency for the transportation of freight in the United States. As the average length of haul is increasing, it is clear that railway freight traffic consists to a large extent of goods in bulk moving long

—P & A Photo

The "Kungsholm", the Latest Addition to the Swedish American Line of Motor-Driven Transatlantic Ships; Considered One of the Finest Vessels Afloat, Approaching Its New York Pier.

One Railroad Man who never worries about Costs

ALL the rest of them do—they worry a heap. For if "working on the railroad" does one thing better than anything else, it makes a man realize the full value of a dollar.

Keeping costs down to bed rock is an important part of every railroad man's training. He is taught very early in the game that rigid economy in spending the money allotted for maintenance and equipment is vital and worth worrying about.

We like to believe that this concentrated effort to get the most for every penny spent is the reason for the purchase of the millions of dollars worth of supplies the railroads have bought from Johns-Manville.

In the first ten months of 1928 total maintenance expenses for the railroads were 72 million dollars less than in 1927, and 234 million dollars less than in 1923*. And in those same ten months, the railroads bought more Johns-Manville materials than ever before in the same period.

The railroad man *is* worrying about costs. And he is buying the right kind of equipment to help him keep costs down. . . .

Johns-Manville Corporation
292 Madison Avenue, New York City

*Railway Age, Editorial, Jan. 5, 1929

JOHNS MANVILLE JM CORPORATION

Johns-Manville

SERVICE TO RAILROADS

This Isn't News, But It Is Important: A Cargo of Pipe From Belgium Unloading at Houston; Underselling American Pipe. There's a Tariff Lesson Here Affecting Railroads.

distances. The average movement per shipment now exceeds 300 miles by an appreciable margin.

"The economic contribution of the railways, in the form of capital expenditures, material purchases, wages, tax payments, interest and dividends, aggregated nearly six billion dollars in 1928. The distribution of this vast sum provided a direct livelihood for more than a million and a half railway employes, their families and dependents; provided employment indirectly for at least as many more persons, through large purchases and capital expenditures widely distributed among different industries; kept the wheels running in many an industry and industrial plant that would otherwise lie idle; bore a substantial share of the annual cost of federal, state, municipal and local governments; in brief, stimulated the business activity of the United States at thousands of points and in a thousand different ways.

"In addition, the railways supplied a fundamental service to the nation through the daily movement of freight and passengers. Their compensation for this service, measured in terms of rate of return on their property investment, was 4.65 per cent in 1928. During the first nine months of 1929 it was 5.29 per cent.

"By speeding up the wheels of their locomotives, by converting car shortages into surpluses, and by improvement in many other factors of operating efficiency, railway performance has quickened the pulse of industry, has helped to stabilize buying and selling, has enabled producers and merchants to reduce inventories, and has made a vital contribution to the economic progress of the nation."

Cut in Air Rates

A reduction of nearly 25 per cent in air passenger fares was announced Nov. 15 by the Transcontinental Air Transport, Inc., under the new schedule announced by T. B. Clement, general traffic manager.

It will be possible to make the train-plane trip from New York to Los Angeles, or vice versa, for $267.43, including meals except those on the Pennsylvania train. The former rate was $338.10.

The Laws Delay

Consideration by congress of new legislation to prevent possible defeat by holding corporations of the government's plan for "orderly" consolidation of railroads has been recommended by the Interstate Commerce Commission in its annual report. Congress also was informed that the commission is proceeding with its general plan for consolidation of all carriers into major trunk line systems and hopes to have this ready shortly.

"It seems clear," the commission said, "that the acquisition of control or of an amount of stock sufficient to influence the policies of competing railroads, either by individuals or by noncarrier corporations, may result in the suppression of competition in a manner no less harmful than if such control be exercised directly by one carrier over another."

Purchase by one road of a competing line is prohibited by the Clayton Act, and under this statute the commission several times has ordered roads to divest themselves of stock acquired in others. The report points out, however, that a further means of unifying carriers through common control or affiliation has been developed and cites the Alleghany Corporation and the Penroad Corporation as examples.

The Alleghany group was held to be controlled, through a combination of direct and indirect means, by the Van Sweringen interests, which control through similar means the New York, Chicago & St. Louis, the Erie, the Pere Marquette and the Chesapeake & Ohio.

If this is the situation, the commission continued, the subjection of the unification of carriers by railroad to the orderly processes of a carefully planned scheme of public regulation, as was planned to be accomplished, is very likely to be partly or even wholly defeated, subject to the possibility that the Clayton Act may "in some measure after protracted litigation, enable control of the situation to be maintained."

No scientific recommendations for legislation were made by the commission, the problem and "its evident dangers" merely being called to the attention of congress for "serious consideration."

The commission reported that under the statute requiring the carriers to surrender 50 per cent of their income in excess of 6 per cent, approximately $300,000,000 was due from the roads for the years 1920-1928, based on preliminary computations. As a result of the O'Fallon decision by the Supreme Court, holding that the commission must consider the cost of reproduction of equipment in valuing the roads, this estimate must be changed, the commission said. It was estimated that under the present system of quasi-judicial hearing procedure a minimum of six years would be required to dispose of the present arrearage, and even at the end of that period the work would not be current, owing to the accumulation during the interval.

Can't Compel Building of Station

The United States Supreme Court decided November 25 that interstate railroads could not be compelled by the Interstate Commerce Commission to build a union station at Los Angeles. The case reached the Supreme Court from the I.C.C., which wished to have settled the question of jurisdiction.

The city of Los Angeles and other parties seeking an order to require the construction of the station had urged that the commission had ample power

New Uptown Station

at St. Louis for the Wabash

THE New Delmar Station of the Wabash Railway at St. Louis is one of the latest examples of the use of air rights by a railroad. The structure was built over the Wabash tracks, immediately adjacent to the Delmar Boulevard viaduct which was recently constructed by the city over the depressed Wabash tracks.

The Delmar Station was designed by the Wabash Railway—Mr. R. E. Mohr, Architect—and was constructed by our organization.

Railway terminal construction and design have formed a large part of our work for railroads.

UNITED ENGINEERS & CONSTRUCTORS, INC

Specialists in the design and construction of

SHOPS
LOCOMOTIVE TERMINALS
PASSENGER TERMINALS
POWER PLANTS
ELECTRIFICATION
PRODUCE TERMINALS
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PHILADELPHIA LOS ANGELES NEW YORK BUENOS AIRES NEWARK RIO DE JANEIRO CHICAGO MONTREAL

MAXIMUM RETURN TO CLIENTS PER DOLLAR INVESTED

under the provisions of the Interstate Commerce Act providing that the commission could require the local union of tracks and the joint use of terminals, tracks, and other facilities.

The court held that the power to order the construction of union stations could not be inferred from such provisions. Explaining that the construction of union depots involved large amounts of capital and detailed transactions the Supreme Court held that it could not be presumed that congress intended to confer any such power upon the commission without a definite expression of such intention in the act.

The city of Los Angeles now is waiting a decision from the state supreme court as to the jurisdiction of the state board of railroad commissioners to compel building of the station.

Revenue Loading Declines

Loading of revenue freight for the week ended November 23 totaled 950,280 cars, the car service division of the American Railway Association has reported. This was a reduction of 78,957 cars under the same week in 1928, but an increase of 109,638 cars above the same week in 1927. Due to the usual seasonal decline in freight traffic, the total for the week ended on November 23 was a reduction of 33,043 cars under the preceding week this year. Miscellaneous freight loading for the week totaled 349,377 cars, 37,864 cars below the same week last year but 34,349 cars above the corresponding week two years ago.

Loading of merchandise less than carload lot freight amounted to 257,801 cars, a reduction of 2,629 cars under the same week in 1928, but 32,172 cars above the same week two years ago.

Cinder Dicks Doing Good Work

Robbery losses in the first six months this year totaled $410,103, a decrease of $127,157 or 24 per cent compared with the corresponding period in 1928. This also was a decrease of approximately six million dollars below the amount of such claims paid in the first half of 1920, when losses from that cause were the greatest in the history of the railroads.

Claims growing out of robbery of entire package paid during the first half of 1929 totaled $240,300, while claims growing out of robbery other than entire package amounted to $169,803. In both instances, these items were reductions under the amounts paid during the corresponding period in the three previous years.

Loss and Damage Claims Lower

Freight claims paid by the railroads during the first six months in 1929 growing out of loss and damage to freight shipments were the lowest for any corresponding period in recent years, according to reports just received for that period from the carriers by the freight claim division of the A.R.A. Total claims paid during the first half of the year totaled $18,510,038, compared with $18,834,897 for the first six months in 1928 and $19,820,223 for the same period in 1927.

For the first six months in 1929, twelve of the sixteen causes for freight claims reflected reductions under the corresponding period in 1928. The other four causes showed increases.

Motor Transit at Toronto

The second annual meeting of the Motor Transport Division of the American Railway Association, held at the Royal York Hotel, Toronto, Ontario, November 12-15, inclusive, was attended by 94 representatives of 71 member roads and four representatives of eight associate member roads, in addition to three who attended by invitation, bringing the total attendance to 101.

The morning session of November 12 was devoted to consideration of the reports of the general, law and nominating committees. Opening the session, Chairman A. P. Russell paid tribute to the work of G. C. Woodruff, former assistant freight traffic manager of the New York Central, and T. B. Wilson, president and manager of the Southern Pacific Motor Transport Company, both of whom have resigned from their respective positions as chairman of the motor truck section and chairman of the motor coach section since the last meeting of the division held in St. Louis in February. Mr. Wilson has retained his membership on the general committee, however, while Mr. Woodruff, who is no longer in railroad service, has been succeeded on the general committee by F. C. Jerome, general freight agent of the New York Central.

On the recommendation of the general committee, it was decided to hold the next session of the division at Atlantic City, in June, 1930, coincident with the meetings of the mechanical and purchases and stores divisions of the American Railway Association.

The report of the law committee was presented by R. N. Van Doren, chairman. Mr. Van Doren reported verbally as to developments in connection with the present situation in connection with the enactment of regulatory legislation by congress. The report of the nominating committee was presented by M. F. Steinberger, chairman. The recommendation of the nominating committee as contained in its report that the incumbent officers and members of the general committee be continued in office another two year term was unanimously adopted.

The afternoon session of November 12 was devoted to the session of the Motor Truck Section. R. K. Stackhouse, chairman of the Motor Truck Section, in opening the meeting, called upon his predecessor, G. C. Woodruff, who spoke briefly. Mr. Stackhouse thereupon called upon the chairmen of the several regional committees who outlined the situation in their respective territories since the last meeting.

On November 13 a joint conference of the Motor Transport Division and the Society of Automotive Engineers was held with representatives of the automotive industry. At this joint conference, in addition to the representatives of the Motor Transport Division and the Society of Automotive Engineers, there were present representatives of the National Automobile Chamber of Commerce, American Automobile Association, and American Electric Railway Association.

Best Paper Contest Announced

Division VI, purchases and stores, A.R.A., announces that the yearly Best Paper contest is to be conducted next year as usual. This contest consists of submitting papers treating on any subject related to purchasing and stores activity and are to be compiled by employes of those departments employed below the rank of assistant purchasing agent or assistant general storekeeper. The authors of the two best papers are to be invited to the yearly meeting of Division VI to present their papers and will receive special mention in the proceedings of 1930. A committee of three, consisting of A. L. Sorensen, manager of stores, Erie Railroad; J. U. King, general storekeeper, Atlantic Coast Line, and F. S. Austin, purchasing agent, Boston & Albany, has been selected from the general committee to act as judges in selecting the two best papers.

The article submitted must have at least 1,000 words and not more than 3,000 and must be in the hands of the secretary not later than March 1, 1930. The awards will be announced not later than May 1, 1930. Papers will be judged on the following subjects: 50 per cent originality of subject, ideas, conclusions and solutions of problems involved; 25 per cent general interest and importance of subject selected. (Important to select subject that will be of interest to the greater number rather than a subject involving a local condition;) 20 per cent conciseness and clearness of expression.

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AUTOMATIC TRAIN PIPE
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They have been in actual service for years on AMERICAN railroads, and under the most exacting conditions.

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CONSOLIDATED CONNECTOR CORPORATION

118 Noble Court

CLEVELAND, OHIO

(Will also cover question of grammatical construction, etc.) 5 per cent general appearance and neatness. (Necessary for convenience of the committee.) Papers submitted in this contest must be mailed to W. J. Farrell, secretary, Division VI, purchases and stores, A.R.A., 30 Vesey street, New York.

Texas Bus Lines Avoid Accidents

The handling of 4,744,867 passengers by motor buses in Texas in 1928 without the death or serious injury of one passenger is noted in the annual report of the railroad commission of Texas to Governor Dan Moody.

"As an instance of the magnitude of the motor bus transportation in Texas—and, incidentally, the magnitude of the task of administering the law—during the year ending Dec. 31, 1928," the report says, "4,744,867 passengers were carried by motor buses in Texas. Incidentally, it would be interesting to know that out of this number not one passenger was killed and none seriously injured.

"There are approximately 222 individuals and corporations operating motor buses over regular routes and between fixed termini and operating over approximately 31,000 miles of public highway in Texas," the report continues. "There are at this time 969 buses operated by the individuals and corporations, and for the year 1928 they operated 45,982,435 bus miles. The total operating revenues for 1928 amounted to $6,412,483.50. The operating expenses for the same period amounted to $5,717,668.17."

Railway Construction

Tracks & Yards

COLORADO.—The Denver & Rio Grande Western has permission to abandon the 6.4-mile branch line from Engleville Junction to Engleville.

KENTUCKY.—The Levisa River, a subsidiary of the Chesapeake & Ohio, has permission to build a line from Millard 28 miles eastward to the Kentucky-Virginia state line. The line will connect with the Chesapeake & Ohio at Millard and will cost about $4,804,000.

LOUISIANA. — The New Orleans Great Northern has asked permission to abandon a branch line from Covington Junction to Folsom, 12.2 miles.

MISSISSIPPI.—The Meridian & Bigbee River has filed for permission to acquire from S. A. Neville and operate a 25-mile logging road from Cliff Williams to Crandall.

MISSOURI. — The Clinch - Mitchell Construction Co., Chicago, has a contract from the Rock Island for 18 miles of new single track line between Nettleton and Polo. This is the second section of a new line from Coburn to Kansas City.

TEXAS.—The Abilene & Eastern, a newly organized company, has applied for permission to build a 45-mile line from Abilene to Cross Plains where it will connect with the M.-K.-T. The secretary of the state of Texas has approved the charter. Frank Kell, president of the Wichita Falls & Southern, is president of the new company.

WISCONSIN.—The Fairchild & North Eastern has permission to abandon its line from Fairchild to Greenwood, 23.5 miles, provided no offer for its purchase equivalent at least to its junk value is made.

Buildings & Structures

ALABAMA.—Carbon Hill. The St. Louis-San Francisco has let a contract to the Ogle Construction Co. for a 200-ton two-track reinforced concrete automatic electric coaling station.

ARKANSAS.—Kensett. The Missouri & North Arkansas plans to build an enginehouse here to cost $75,000 and to have outside dimensions of 70 by 100 ft.

ILLINOIS.—East St. Louis. The Terminal Railroad Assn. and the city commissioners are considering building a new union passenger station to cost about $600,000. The tentative plans include the rerouting of all passenger trains into St. Louis, Mo.

INDIANA.—Indianapolis. The Pennsylvania has let a contract to the Ogle Construction Co. for a 300-ton four-track reinforced concrete automatic electric coaling station and sanding plant.

IOWA.—Council Bluffs. G. A. Johnson & Son, Chicago, has a contract from the Chicago & North Western for an addition to the enginehouse here to cost about $50,000.

KENTUCKY.—Louisville. The Roberts & Schaefer Co., Chicago, has a contract from the Big Four for an "N. & W." type electric cinder handling plant at the Louisville & Jeffersonville Bridge & Railroad Terminal here.

MASSACHUSETTS. — Boston. The Roberts & Schaefer Co., Chicago, has a contract from the Boston & Maine for an automatic sand drying plant and a 2,800-cu. yd. enclosed sand storage plant at the Somerville enginehouse.

MISSOURI.—Chaffee. The St. Louis-San Francisco has let a contract to the Ogle Construction Co. for a 200-ton two-track reinforced concrete automatic electric coaling station.

—Kansas City. The M. A. Long Co., Baltimore, has a contract from the Missouri Pacific for a grain elevator between Martin ave., and the southwest junction yard here.

—Kansas City. Joseph E. Nelson & Sons, Chicago, has a contract from the Rock Island for a brick, concrete and steel enginehouse and turntable to cost $50,000.

—Sedalia. T. H. Johnson, Sedalia, has a contract from the Missouri Pacific for a spring shop here to be of concrete foundation, steel frame and corrugated asbestos siding, 51 ft. by 151 ft.

MONTANA. — Bainville. The Great Northern has let a contract to A. Guthrie & Co., St. Paul, for a water supply reservoir here to be 150 ft. wide, 1,500 ft. long and 20 ft. deep. It involves the excavation of about 100,000 cu. yds. of material.

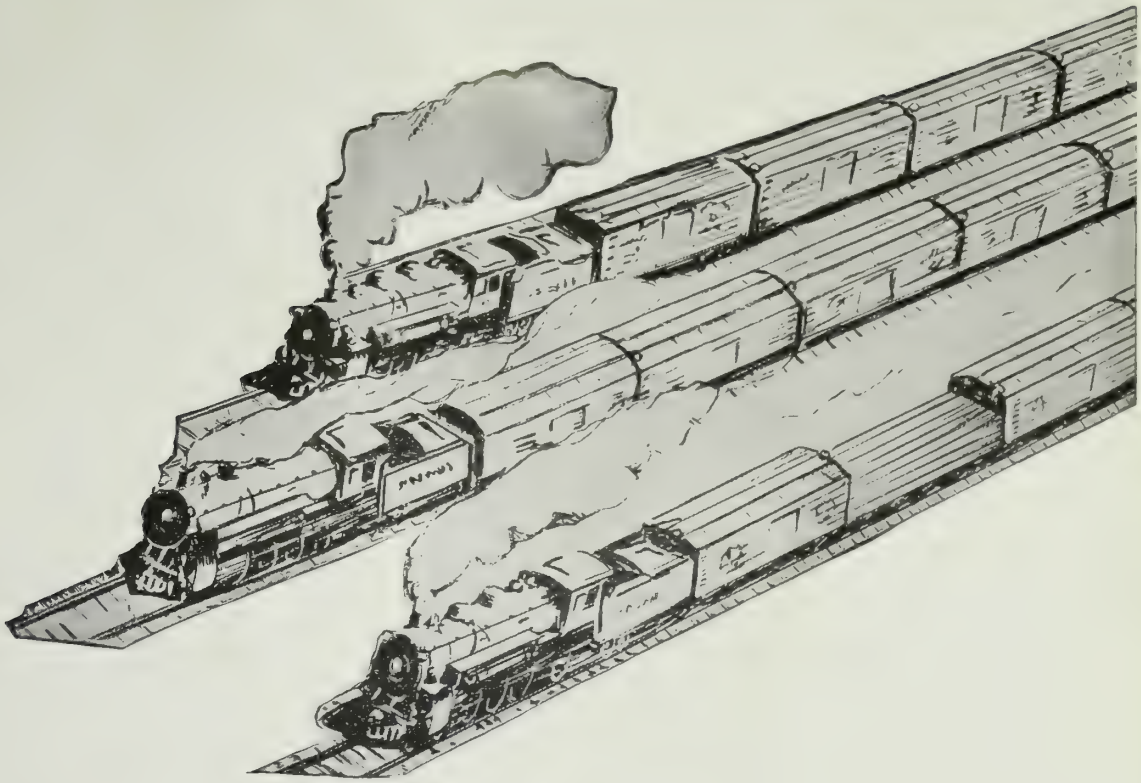
—Great Falls. The Great Northern has let a contract to Pappin & Dudley, Great Falls, for a car repair shop and wood working mill to replace one destroyed by fire and to cost about $140,000. The building will be 114 by 600 ft.

NEW JERSEY.—Jersey City. The Nicholson Co., Inc., New York, has a contract for the Central of New Jersey for a coal storage plant at Caven Point here.

—Trenton. The Pennsylvania has announced plans for a passenger station here to cost about $1,750,000. The new station will be on the site of the old one, fronting on Clinton street, and will be completely electrified. A loop track for street car service will be built, adequate parking space for automobiles provided and space for a motor coach terminal on the south side of the building set aside. An extension of the present concourse over the tracks will provide access to trains.

OHIO.—Bradford. The Ogle Construction Co. has a contract from the Pennsylvania for a 500-ton four-track reinforced concrete automatic electric coaling station and sanding plant here.

PENNSYLVANIA. — Allentown. The Lehigh & New England has let a contract for an office building to the M. A. Long Co., of Baltimore.



The Booster now considered fundamental element in design

FORNEY—the great locomotive designer, often said, "build a boiler as big as you can make it and then it won't be big enough."

In his day all possible weight was carried on the drivers and the size of the boiler was limited by the permissable wheel load.

But now, two and four-wheel trailing trucks remove the old limits of design and the boiler can be made as large as desired. The designer does not hesitate to place weight on trailers because he knows it can be made to do useful work through the medium of The Locomotive Booster.

The Booster has become a fundamental element in locomotive design similar to grate area, evaporating surface, etc. It is counted upon to restore the balance of the locomotive equation which the great increase in boiler power would otherwise disturb.

FRANKLIN RAILWAY SUPPLY COMPANY, Inc.

NEW YORK CHICAGO SAN FRANCISCO ST. LOUIS MONTREAL

TEXAS.—Galveston. The Jones-Hettelsater Construction Co., Kansas City, has a contract from the Galveston Wharf Co. for a 6,000,000-bu. capacity grain elevator. The cost is estimated at $2,000,000.

WISCONSIN.—South Janesville. The Chicago & North Western has let a contract to the Ogle Construction Co., Chicago, for a two-track mechanical ash handling plant.

Locomotive Orders

According to reports filed with the A.R.A., locomotives in need of repair on the Class I railroads, November 15, totaled 8,434 or 14.9 per cent of the number on line, 7.8 per cent in need of classified repairs and 7.1 per cent in need of running repairs. This was an increase of 803 compared with the number on November 1 at which time there were 7,631 or 13.4 per cent. Serviceable locomotives in storage, November 15, totaled 4,495 compared with 4,041 on November 1.

The Denver & Rio Grande Western is inquiring for 10 Mallets; New York Central, 10 2-8-4 and five 4-6-4 for the Boston & Albany; Canadian National, 18 2-10-2 and 12 4-8-2 types. It is reported the Milwaukee plans to build 15 freight locomotives and the St. Louis Southwestern will buy 10 4-8-4 type. The Southern Pacific budget for 1930 includes 35 steam and two electric locomotives. The New Haven appropriation calls for 10 electric locomotives.

The Rock Island ordered 40 4-8-4 type from American; East Jersey Railroad & Terminal Co., one switcher from Baldwin; Kentucky & Indiana Terminal, eight switchers from Lima; Michigan Central, four oil-electric locomotives from American, Ingersoll-Rand and General Electric; Frisco, 20 Mikados from Baldwin; Texas South Eastern, one 2-8-2 type from Baldwin; Cerro de Pasco, two 2-8-0 type from American. The Burlington will build 21 switchers in its own shops and the Norfolk & Western will build 10 Mallets in its Roanoke shops. The Illinois Terminal Co. ordered one 90-ton combination electric locomotive, to be built by the St. Louis Car Co., the electric equipment to be supplied by the General Electric Company, the storage batteries by the Exide Storage Battery Company and the furnace-oil engines by the Buda Company.

Passenger Car Orders

Orders for passenger cars placed since the November issue of Transportation include the following: Detroit & Mackinac, one baggage and mail car from Bethlehem Steel Co.; Great Northern, two dining cars from Pullman; Frisco, ten baggage and mail and ten baggage cars from American Car & Fdy. Co.; Texas-Mexican, one postal and baggage car from Bethlehem Steel Co. The Milwaukee will build 15 passenger cars in its own shops, and the Mexican Railway will build one mail and baggage car in its shops. The Erie has ordered one oil-electric rail car from Westinghouse Electric & Mfg. Co., the body to be built by the St. Louis Car Co. This car will be divided into a power plant room, a mail compartment and baggage compartment.

The New York Central is inquiring for 12 rail motor cars; Northern Pacific, nine dining cars; Frisco, three dining cars; Canadian National, 20 baggage cars, Southern Pacific, six gas-electric passenger and baggage cars. The Reading has authorized the purchase of 100 multiple-unit electric coaches and will also place orders for a number of coaches and gasoline-electric cars. The Rock Island appropriation for 1930 includes 24 passenger cars, that of the New Haven, 33 multiple-unit passenger cars and trailers; Southern Pacific, 47

THE NEWEST THING in ARCHES

Economy Baffle Wall

Represents all that the name implies.

Let Economy Service Engineers cooperate with your Mechanical Department in the proper use, application and handling of "Economy" brick, to bring about economies in the maintenance of your locomotive arch and furnace brick.

Economy Arch Company

Railway Exchange Bldg. St. Louis, Mo.

units of passenger equipment consisting of dining, lounge and baggage cars.

Freight Car Orders

A new low record for recent years in the number of freight cars in need of repair, was established by the railroads on November 15, according to reports filed by the carriers with the car service division of the A.R.A. On that date, there were 125,646 cars in need of repair or 5.7 per cent of the number on line, 4.2 in need of heavy repairs and 1.5 per cent in need of running repairs. This was a reduction of 409 cars under the best previous low record, established on November 1, 1929, when there were 126,055 cars or 5.7 per cent.

The Milwaukee is in the market for 600 flat, 700 box, 1000 gondolas and 750 stock cars; Canadian National, 3000 box and 200 refrigerator cars; Missouri-Kansas-Texas, 500 gondolas; North American Car Corpn., from 50 to 100 express refrigerator cars; Peoples Gas By-Products Corpn., from 10 to 25 tank cars; Reading Company, from 1000 to 2000 box cars; Shell Co., San Francisco, 10 flat cars; Southern Pacific, 300 automobile cars and 100 gondolas; Swift & Co., 300 underframes; Texas Co., 600 tank cars. The Southern Pacific will build 60 cabooses in the company shops.

The Santa Fe ordered 100 tank cars from General American Tank Car Corpn.; Beauharnois Light, Heat & Power Co., Montreal, 60 air dump cars from National Steel Car Co.; Milwaukee, 300 ore cars from Pressed Steel Car Co.; Rock Island, 1000 box cars from American Car & Fdy. Co., 1000 gondolas from Pressed Steel Car Co., 1000 automobile cars from Bettendorf Company, 500 box cars from Pullman, 500 automobile cars from Standard Steel Car Co., 500 box from General American Car Corpn., 250 flat and 250 stock cars from Ryan Car Co.; Great Northern, 200 flat cars from Standard Steel Car Co.; Missouri Pacific, 1000 hoppers from Standard Steel Car Co.; North American Car Corpn., five tank cars from American Car & Fdy. Co.; Frisco, 1000 box and 700 coal cars from Pullman, 1500 box cars from American Car & Fdy. Co., 300 automobile cars from General American Car Co., 300 coal cars from company shops at Memphis, the underframes to be supplied by Virginia Bridge & Iron Co.; Shell Oil Co., 100 tank cars from General American Tank Car Corpn.; Union Tank Car Co., 1000 tank cars from American Car & Fdy. Co.

Bus Orders

Recent bus orders and deliveries include the following: Aronimink Transportation Co., Philadelphia, three 40-passenger Twin urban coaches; Atlantic & Pacific Stages of St. Louis, three 29-passenger Mack Interstate type buses; Atlantic Stages Inc. of Philadelphia, ten 29-passenger Mack city type buses; Boston Elevated Ry., one 38-passenger Mack city type bus; Capital District Transportation Co., three 40-passenger Twin urban coaches; Capital Traction Co., one 27-passenger ACF parlor car coach; Cincinnati St. Railway Co., one 40-passenger Twin urban coach; Delaware Bus Co., Philadelphia, three type Z 29-passenger Yellow buses; Eastern Texas Electric Corpn., Beaumont, two White buses; Erie Railways, two type W Yellow city service buses; Houston Electric Co., one 21-passenger Twin urban coach; Interstate Transit Inc. of Cincinnati, five 29-passenger Mack Interstate type buses; Johnston Traction Co., three type W Yellow city service buses; Knoxville Power & Light Co., one type W Yellow city service bus; Milwaukee Electric Ry. & Light Co., three 40-passenger Twin urban coaches; Montreal Tramways, one 29-passenger Mack city

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Cylinder Packing
Piston—Piston Bull Ring
Valve Bushing
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Valve Bull Rings
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HUNT-SPILLER AIR FURNACE GUN IRON is being applied with increasing demand to the wearing parts of cylinders, piston bull rings, cylinder packing.

Apply it to the above parts of your locomotives and get high quality of service from this superior wear-resisting material.

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type bus; New Orleans Public Service Inc., one 42-passenger Twin trackless trolley; North Carolina Public Service, Greensboro, one type W Yellow city service bus; Pacific Gas & Electric Co., two type W Yellow buses; Pittsburgh Motor Coach Co., seven White buses; St. Joseph Ry., Light, Heat & Power Co., six 29-passenger Mack city type buses; Southern Pennsylvania Bus Co., Philadelphia, two type Z 29-passenger Yellow buses; Tacoma Bus Co., two 37-passenger Mack city type buses; Tri-City Ry., Davenport, two 29-passenger Mack city type buses; Union Pacific Stages, Inc., ten Mack bus chassis; Western Slope Motor Way, one type W Yellow parlor coach; Wheeling & Parkersburg Motor Co., Sisterville, W. Va., one type W Yellow observation coach; Wisconsin Power & Light Co., Madison, two Yellow observation coaches; Yonkers Bus Corpn., one 29-passenger Mack city type bus.

Changes in Personnel

Executive & Operating

Arthur B. Nichols has been elected vice president of the Boston & Maine and will continue as clerk of the corporation and clerk of the board of directors. Mr. Nichols started work for that road nearly 36 years ago as an office boy and messenger. He became president's stenographer in 1895, serving in succession Lucius Tuttle, and C. S. Mellen. He was made assistant to the president in 1912 and continued in that position, assuming also the duties of treasurer of the corporation in 1918 when the government took over the railroads. Mr. Nichols is a director and officer in the affiliated and subsidiary corporations of the Boston & Maine.

Lawrence A. Downs, president of the Illinois Central, with headquarters at Chicago, also has been elected chairman of the board of directors of the Central of Georgia and the Ocean Steamship Co., Savannah, to succeed **Charles H. Markham**, who remains a director of the two companies and chairman of the board of the Illinois Central.

Thomas B. Grady, superintendent of the Canadian National, with headquarters at Charlottetown, P. E. I., retired November 1, after 53 years of railroad work.

N. Terhune, assistant secretary and assistant treasurer of the Great Northern, with headquarters at New York, has been appointed assistant vice president also.

James Shannon, superintendent of the Idaho division of the Northern Pacific, with headquarters at Spokane, retired December 1, after 40 years continuous service with that road. **D. S. Colby**, superintendent of the Dakota division, with headquarters at Jamestown, N. D., has been named to succeed Mr. Shannon at Spokane. **R. T. Taylor**, superintendent of the Yellowstone division, with headquarters at Glendive, Mont., succeeds Mr. Colby. **D. M. Driscoll**, superintendent of ore operations at Duluth, succeeds Mr. Taylor and is in turn succeeded by **G. N. Slade**, trainmaster of the St. Paul division with headquarters at Minneapolis.

T. H. B. McKnight, vice president of the Pennsylvania and the Pittsburgh, Cincinnati, Chicago & St. Louis, retired December 1, after 52 years' railroad service.

J. A. Droege, general manager of the

JORDAN SPREADER
"Does the Work of an Army of Men"
SNOW PLOW ★ ICE CUTTER
UNIVERSALLY STANDARD
DITCHER
O.F. JORDAN COMPANY
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JORDAN
SPREADER - DITCHER

Indispensable in mines, on railways, public works, industrial plants, etc.

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New Haven, has been appointed also vice president with headquarters as before in New Haven. **Howard S. Palmer**, controller, has been appointed vice president in charge of accounts with headquarters at New Haven.

Charles C. Paulding, vice president of public relations of the New York Central, has been appointed vice president of law and public relations, with headquarters as before in New York, to succeed **R. J. Cary**, deceased.

Daniel Upthegrove, president of the St. Louis & Southwestern, has been elected president of the Blytheville, Leachville & Arkansas Southern, which road has been acquired by the Cotton Belt.

J. A. Appleton, acting general superintendent of the Lake division, Pennsylvania Railroad, has been appointed general superintendent of the northwestern division with headquarters at Chicago, to succeed **W. S. Franklin**, resigned.

Lewis Neilson, secretary of the Pennsylvania since 1901, has been elected to the newly created position of vice president, secretarial department. **J. Taney Willcox**, assistant secretary, succeeds Mr. Neilson as secretary.

Carroll R. Harding, engineer of standards for the Southern Pacific, has been appointed assistant to the president. Mr. Harding's entire railroad career has been with the Southern Pacific. The construction of the railroad's Suisun Bay bridge is under his supervision. He is chairman of the maintenance of way standardizing committee and of the committee on insurance, and will continue to have charge of the inspection of material and equipment purchased for the system. Mr. Harding was born in Hallowell, Maine, in 1888, and was graduated as a civil engineer from Cornell University in 1910. Before joining the Southern Pacific in 1913 he worked for the American Bridge Co. and also made surveys in Alaska, Michigan and Costa Rica. His first job with the railroad was as a draftsman; he was made chief draftsman in 1914 and assistant consulting engineer two years later. He became consulting engineer in 1923 and engineer of standards in 1925.

Carroll R. Harding

Arthur R. Savage, commercial agent for the Atlantic Coast Line at Mulberry, Fla., has been appointed superintendent of mine service with headquarters as before. **S. A. Stockard**, general superintendent of transportation, has been appointed director of transportation in charge of all freight and passenger service, with headquarters as before at Wilmington, N. C.

J. M. Baths, superintendent of the Peoria & Pekin Union with headquarters at Peoria, has been appointed general superintendent of the Chicago Great Western, a newly created position, with headquarters at Oelwein, Ia.

J. M. Symes, superintendent of passenger transportation, western region of the Pennsylvania at Chicago, has been appointed superintendent of passenger transportation, eastern region at Philadelphia, to succeed **J. E. Burrell**,

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Realizing that in order to make the Bird-Archer Boiler Chemical treatment a success, locomotive boilers must be blown regularly, this Company has placed on the market a Blow-off Cock, with various types and sizes to meet the requirements of the railroads. Our latest booklet will be mailed to you from our nearest office upon request.

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assigned to special duty. Mr. Symes is succeeded by **Howard Ginter**, chief clerk to the vice president, central region at Pittsburgh. **R. C. Miller**, superintendent of the Columbus division, has been named acting assistant chief engineer at Philadelphia. **J. F. Henry**, superintendent, Camden terminal division and West Jersey & Seashore Railroad, has been named superintendent of the Columbus division. **B. H. Hudson**, superintendent of the Sunbury division, succeeds Mr. Henry. **J. L. Gressitt**, division engineer, Fort Wayne division, succeeds Mr. Hudson. **T. B. Hamilton**, superintendent, Grand Rapids division, has been appointed engineer of motive power at Philadelphia. **C. E. Adams**, division engineer, Philadelphia Terminal division, has been appointed superintendent of the Grand Rapids division. **W. R. Elsey**, acting superintendent floating equipment, has been named to succeed **F. L. DuBosque**, retired, as superintendent floating equipment at New York.

Financial & Legal

J. Aronson, assistant general counsel of the New York Central with headquarters at New York, has been appointed general counsel. **Grosby J. Beakes**, contract counsel, has been appointed to succeed Mr. Aronson. **S. C. Murray**, general attorney, has been appointed general counsel, with headquarters as before at Chicago, and **G. L. Howe** has been appointed assistant treasurer with headquarters at New York to succeed **S. S. Bliss**, deceased.

William T. Kemper, Jr., has been appointed treasurer of the Orient in Mexico with headquarters at Nogales, Ariz.

Edwin G. Warner has been appointed assistant secretary and assistant treasurer of the Missouri Pacific, with headquarters in New York.

P. S. Chalmers, chief clerk to the vice president of finance and accounting of the Canadian National at Montreal, has been appointed treasurer of the Northern Alberta, with headquarters at Edmonton.

The Pere Marquette announces that **C. E. Connally** has been appointed auditor of traffic accounts at Detroit to succeed **A. J. Anderson**, deceased.

Purchases & Stores

Charles R. Painter, assistant to the vice president of the New Haven, has been appointed purchasing agent with headquarters at New Haven. Mr. Painter went to the New Haven in 1917 as chief clerk to the general storekeeper. He was made chief clerk to the purchasing agent in 1918, assistant to the general purchasing agent in 1922, and assistant to the vice president, purchasing and stores department, in 1925.

The Great Northern announces that **L. F. Lohmann** has been appointed assistant purchasing agent with headquarters at Seattle, to succeed **O. H. Wood**, deceased.

Albert J. Stackpole has been appointed storekeeper of the Boston & Maine, with headquarters at Keene, N. H., to succeed **L. E. Field**, assigned to other duties.

Traffic

The Buffalo, Rochester & Pittsburgh announces the appointment of **Everett D. Davis** as freight traffic manager with headquarters at Rochester. Mr. Davis resigned as assistant freight traffic manager in May, 1929, to engage in other business.

H. G. Feth, assistant to the general freight agent of the Chicago & Eastern Illinois, has been promoted to assistant general freight agent, with headquarters as before at Chicago.

K. N. Middlekauff has been appointed assistant general passenger agent of the Union Pacific with headquarters at Denver, to succeed **I. W. Carter**, resigned.

The Pere Marquette announces that **C. M. Booth**, freight traffic manager,

FULL STEAM AHEAD

The United States has less than eight per cent of the world's area and six per cent of the population, but it has thirty-three per cent of the world's railway mileage. And there is a reason for this.

Fundamental to every project in the life of the nation is transportation. The American railways have proven efficient burden carriers for every productive activity and serve in the ranks of developers and builders. That they have the confidence of the people is revealed in the fact that money invested in railway property in this country has increased 69 per cent since 1911.

Southern Pacific which operates more miles of railroad than any other line is a large factor in the growth of the West. During the past fifteen years this railroad spent $88,000,000 for construction of new lines.

It has pioneered into new territory and made available to men the rich natural resources of nine states. This territory is comparatively young, is sparsely settled and is immeasurably rich in potential growth.

The Southern Pacific recognizes the sound position of this region and its service and development shall continue under "full steam ahead."

SOUTHERN PACIFIC

has been appointed traffic manager, a newly created position, with headquarters as before at Detroit. **R. P. Patterson,** assistant freight traffic manager with headquarters at Detroit, has been named to succeed Mr. Booth. **George D. Moffett** has been appointed industrial commissioner with headquarters at Detroit.

D. F. Farmer, assistant general freight agent of the Baltimore & Ohio with headquarters at Cleveland, has been appointed general freight agent at Baltimore. **F. T. Sturtevant**, division freight agent, Youngstown, has been named to succeed Mr. Farmer. **M. N. Freese,** division freight agent, Newark, Ohio, has been transferred to Youngstown to succeed Mr. Sturtevant. **C. M. Groninger,** division freight agent at Garrett, Ind., succeeds Mr. Freese. **J. A. Boyce, Jr.,** division freight agent at Chillicothe, Ohio, succeeds Mr. Groninger at Garrett. **C. S. Stout**, district freight agent at Newark, N. J., will succeed Mr. Boyce at Chillicothe.

The Union Pacific announces that **J. B. DeFriest,** general agent, New York, will retire January 1, after more than 42 years service. **A. J. Seitz** has been appointed general agent, freight department, and **H. A. Lawrence,** general agent, passenger department, headquarters at New York, to succeed Mr. DeFriest.

Mechanical

The Illinois Central announces that **G. C. Christy,** master mechanic on the Illinois Central at Vicksburg, Miss., has been appointed superintendent of the car department, a newly created position, with headquarters at Chicago. Mr. Christy will be succeeded at Vicksburg by **S. R. Mauldin,** master mechanic at Jackson, Tenn., who will in turn be succeeded by **L. A. Kuhns,** master mechanic at East St. Louis, Ill. The jurisdiction of **H. N. Seeley,** master mechanic at Centralia, Ill., has been extended to include the St. Louis division and the East St. Louis terminal.

Charles Emerson, acting master mechanic of the Tacoma division of the Northern Pacific, has been appointed master mechanic to succeed **James Bruce,** retired after 46 years with that company.

C. W. Esch, chief draftsman in the mechanical department of the Chicago & Alton, has been appointed mechanical engineer with headquarters at Bloomington, Ill., to succeed **G. C. Seidel,** resigned.

The Michigan Central announces that **J. J. Nicol,** general car foreman at Niles, Mich., has been appointed division general car foreman at St. Thomas, Ont., to succeed **A. J. Mitchener,** deceased. Mr. Nicol will be succeeded at Niles by **Max Reum.**

The Erie announces that **F. S. Brown,** mechanical engineer at Cleveland, has been transferred to New York. **H. A. Boyer,** assistant shop superintendent at Hornell, N. Y., has been transferred to the mechanical department at New York.

Civil

N. W. Smith, general superintendent of motor service of the Pennsylvania, has been appointed assistant chief engineer with headquarters in Philadelphia. **W. B. Wood,** assistant to the general manager, western region at Chicago, has been appointed engineer in charge of the Baltimore improvements. Mr. Wood succeeds **John F. Murray,** who resigned October 16.

C. F. Grundy, signal draftsman on the Kansas City Southern, has been appointed signal engineer with headquarters as before at Kansas City.

The Missouri Pacific announces that the territory of **H. D. Knecht,** division engineer at Little Rock, has been extended to include the entire Arkansas division.

E. H. Piper has been appointed engineer maintenance of way of the Burlington, Nebraska district, with headquarters at Lincoln, to succeed **A. Chinn,**

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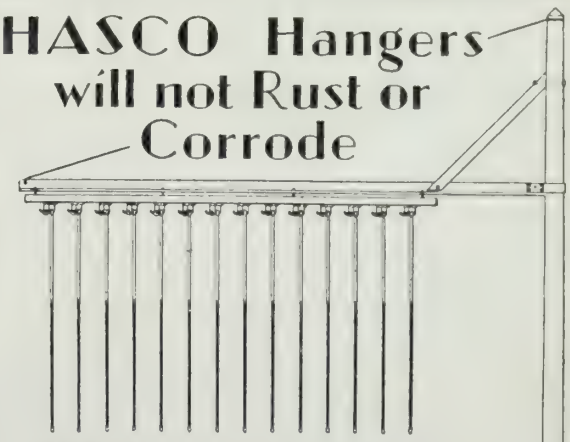

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resigned. Mr. Piper also will act as supervisor of work equipment for the entire lines west.

The Illinois Central changed the titles of all division roadmasters on its system to division engineers, effective December 1.

E. H. Thornberry, assistant chief engineer of the Peoria & Pekin Union, has been appointed chief engineer, with headquarters as before at Peoria.

The Boston & Maine announces that leave of absence has been granted **F. E. Sampson,** division engineer of the Connecticut River division at Springfield, Mass. **H. C. Archibald,** assistant division engineer of the Fitchburg division, with headquarters at Fitchburg, Mass., will serve as acting division engineer at Springfield, **H. S. Ashley,** assistant engineer at Dover, N. H., has been appointed to succeed temporarily Mr. Archibald at Fitchburg.

Obituary

Samuel A. Latimer, coal traffic manager of the Pennsylvania at Pittsburgh, died November 21 at his home in New York, aged 44.

Waiteman Harrison Conaway, associate counsel for the Baltimore & Ohio, died at Fairmont, W. Va., November 27 after a brief illness.

Maurice A. Oudin, vice president of the International General Electric Co., died at his home in Schenectady December 4. Mr. Oudin was 63 years of age.

O. H. Wood, assistant purchasing agent of the Great Northern with headquarters at Seattle, died there October 25.

John A. Middleton, vice president of the Lehigh Valley, with headquarters at New York, died November 17, at the age of 72. Mr. Middleton entered railroad service in 1896 as secretary of the Erie.

Charles C. Gignoux, assistant supervisor of agriculture of the Oregon-Washington Railroad & Navigation Co., with headquarters at Portland, died there October 27.

Lester S. Carroll, vice president of the American Locomotive Co., with headquarters at New York, died November 14 in a subway train on the way to his office. He was 65 years of age. Forty-three years ago, at the age of 22, Mr. Carroll began his railroad career as a helper in a little station of the Chicago & North Western in South Dakota. He learned telegraphy and in time became the station agent. In the years that followed he became a traveling auditor for that road, general traveling auditor, purchasing agent and general purchasing agent. When the government took over the railroads during the war Mr. Carroll was appointed chairman of the northwest regional purchasing committee. He was appointed general purchasing agent for the American Locomotive Co. in 1920, and was made vice president in charge of purchases in 1924.

Arthur LeGrand Doty, vice president of the Middletown Car Co., died November 18, at the Hudson City Hospital, Hudson, N. Y., following an operation.

Charles B. Moore, president of the Ajax Hand Brake Co., Chicago, chairman of the board of the Oxweld Railroad Service Co., and vice president of the Youngstown Steel Door Co., died November 9 in Evanston, Ill.

Alexander L. Schuhl, manager of the Philadelphia office of the Independent Pneumatic Tool Co., died October 20, aged 45.

Supply Trade Notes

W. J. Schlacks, formerly vice president of the Locomotor Co., has been appointed railroad representative of the **Barber Asphalt Co.** for the territory west, south and southwest of St. Louis.

The **Headley Emulsified Products Co.,** Philadelphia, has been organized to succeed the Headley Good Roads Co. and the following officers elected: **Edgar S. Ross,** director of research and development of the old company, formerly in charge of investigations on roofings and waterproofings at the Mellon Institute of Industrial Research, presi-

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Completely rebuilding large numbers of steel cars in record time is an achievement that Ralston Steel Car Company has repeated time and time again.

This is possible only through our excellent facilities and well-balanced program, which, together with skilled workmen and competent engineers, keep the cars moving through the plant on regular schedule.

THE RALSTON PLANT is equipped to build New Cars, to Rebuild Old Cars, to Repair and to supply repair parts. All materials and work of the highest QUALITY and performed under expert Engineering Supervision.

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It is easy to visit Grand Canyon on the Santa Fe. Through Pullman Sleepers, on four of fourteen fast daily trains between California and Chicago, take you to the very rim of this titan of chasms, and on to Chicago or California without change. Our Grand Canyon Outings folder will be mailed upon request. It is a complete guide book to the Canyon region.

Santa Fe

The interesting, colorful
Indian-detour
may also be easily included in your itinerary. Send for picture folder.

JAS. B. DUFFY
Asst. Pass. Traffic Manager
Los Angeles

W. J. BLACK
Passenger Traffic Manager
Chicago

dent; **Parmeley W. Herrick** of the Herrick Co., Cleveland, vice president; **M. W. Lefever**, for 15 years vice president and treasurer of the old company, has been made vice president and treasurer of the new one; **George D. Webster** of Cleveland has been made secretary.

The **Pyle-National Co.**, Chicago, announces that a new office has been opened in the Transportation bldg., Washington, D. C., with **Crawford McGinnis** in charge.

Frank P. Walsh has been appointed manager of the new **Whiting Corpn.** office at 1442 Syndicate Trust bldg., St. Louis. He will have charge of sales in Missouri, Arkansas, Oklahoma, southern Illinois and western Iowa and Nebraska.

Walter R. Pflasterer, who recently resigned as manager of railroad sales of the United States Graphite Co., and **Roy N. Chissom**, manager of railroad sales of the Otley Paint Co., have organized the **P. & C. Co.**, Chicago, to sell railway and industrial supplies.

Joseph P. Fletcher, manager of the Buffalo office of the **Independent Pneumatic Tool Co.**, has been appointed manager of the Philadelphia office to succeed **A. L. Schuhl**, deceased. **W. O. Becker**, in the Toronto office, will succeed Mr. Fletcher in Buffalo.

The **Railroad Supply Co.**, Chicago, announces the purchase of the **Chicago Railway Signal & Supply Co.** The business will be conducted under the direction of the combined sales and engineering staffs of both companies.

The **W. P. Brown & Sons Lumber Co.**, Louisville, has organized a subsidiary, the **Brown Wood Preserving Co.** The new company has purchased 93 acres at Strawberry, south of Louisville, where it will install a creosoting plant for treating lumber, ties, timbers and forest products.

E. D. Cowlin, manager of the New York office of the **Reliance Manufacturing Co.**, Massillon, O., has been appointed sales manager with headquarters at Massillon and will assume the duties January 1.

J. A. Kiggen, Jr., has been appointed district manager of New York state for the **White Co.**, with headquarters in Syracuse. Branch offices at Albany, Buffalo, Rochester and Syracuse will be under the direction of Mr. Kiggen. Offices at Richmond and Norfolk, Va., will be directed by **J. E. Hamlett**, district manager at Baltimore. Branches at New Haven, Conn., and Springfield, Mass., will be directed by **J. C. Ardern**, district manager at Hartford. The counties of Ulster and Dutchess in New York will be transferred from the Albany to the Newark district and the county of Berkshire, Mass., from the Springfield to the Albany territory.

William K. Farrell, assistant general purchasing agent of the **American Locomotive Co.**, at New York, has been appointed general purchasing agent.

Floyd K. Smith, for the past 11 years vice president and treasurer of the **Donner Steel Co., Buffalo**, has been elected president of the company and its subsidiaries, the Donner Steamship Co. and the Donner Ore Co. Mr. Smith succeeds **William H. Donner.** Control of the Donner Steel Co. was recently acquired by **Continental Shares, Inc.** of Cleveland.

The **Austin Co.**, Cleveland, announces that **H. F. Miter**, general manager of the Cleveland district, has been elected vice president in charge of foreign operations. **L. E. Cooney**, sales manager, has been named assistant general of the Cleveland district.

Lockwood Hill of the Blackman Hill Co., St. Louis, has organized the **Hill Equipment Engineering Co.**, at 4620 Delmar blvd., St. Louis. The new company will have the exclusive sale of the products of the Baker Industrial Truck Co. and the Lincoln Electric Co. in the St. Louis metropolitan district and the eastern Missouri and southern Illinois territories.

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WHEN the ice is in and the hatches down—then what? If your cars are insulated with Balsam-Wool Refrigerator Car Insulation you have assurance that each car icing will furnish full protection. Balsam-Wool protection gives to each icing a safety margin of many hours.

The patented crepe paper liners have a stretch of 20%. Thus Balsam-Wool permanently seals the cars despite strenuous wracking through thousands of miles of service.

Balsam-Wool Refrigerator Car Insulation is impervious to wind and water, fire-resistant and much lighter than other forms of insulation. It will not rot, sift or settle.

Samples and complete information will be sent on request.

WOOD CONVERSION COMPANY

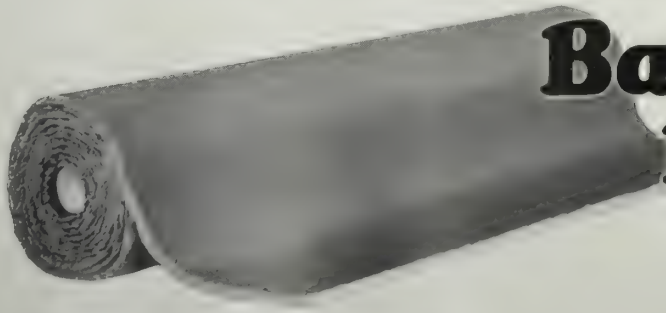
Insulation Division of Weyerhaeuser Forest Products

Mills at Cloquet, Minnesota

Railroad Sales Offices: Chicago, 360 N. Michigan Ave.

New York, 3107 Chanin Bldg.—Washington, D. C., 531 14th St., N.W.—Detroit, 3084 W. Grand Blvd.

Manufacturers of the Balsam-Wool line of Industrial Insulations for Refrigerator Cars, Passenger Cars, Motor Buses, Airplanes, Domestic Refrigerators. Also makers of Balsam-Wool Standard Building Insulation and Nu-Wood Insulating Board



Balsam-Wool Blanket

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